# ENERGY EFFICIENCY IN FLORIDA'S FUTURE

## HEARING

BEFORE THE

## SUBCOMMITTEE ON ENERGY DEVELOPMENT AND APPLICATIONS

OF THE

## COMMITTEE ON SCIENCE AND TECHNOLOGY U.S. HOUSE OF REPRESENTATIVES

NINETY-SEVENTH CONGRESS

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# ENERGY EFFICIENCY IN FLORIDA'S FUTURE

MONDAY, OCTOBER 26, 1981

HOUSE OF REPRESENTATIVES,
COMMITTEE ON SCIENCE AND TECHNOLOGY,
SUBCOMMITTEE ON ENERGY DEVELOPMENT AND APPLICATION,
*Tallahassee, Fla.*

The subcommittee met, pursuant to call, at 9:30 a.m., in room C, Florida Senate Chamber, South Monroe Street, Tallahassee, Fla., Hon. Don Fuqua (chairman of the subcommittee) presiding.

Mr. FUQUA. The hearing will come to order. Without objection, photographs and recordings may be made during the course of the hearing.

It gives me a great deal of pleasure to welcome two colleagues, Congressman Hamilton Fish from New York, who is the ranking Republican member on the Subcommittee on Energy Development and Applications; Congressman Ray McGrath, also from New York. He is a member of the subcommittee, and we hope to be joined later by Congressman Bill Nelson from Florida. And I certainly hope that your stay in Tallahassee improves after the midnight flight last night getting in.

I am also happy to welcome many of our distinguished witnesses who are visiting with us today and are to testify before us about the activities of Florida citizens to promote energy efficiency.

Efficiency is a very simple concept. It means getting the maximum use or useful output out of a given amount of input, and it means eliminating waste or unnecessary effort, and it means maximizing the productivity of scarce resources. It means, quite simply, using sound business practices. Unfortunately, the simple, business-like concept has become obscured by its sister word "conservation" which has taken on the connotations of hardship, sacrifice, doing without and changing one's lifestyle. As a result, we are only beginning to appreciate the full potential for reducing waste and improving productivity in the Nation's energy use.

The Mellon Institute, for example, estimated that we could cut our use of gasoline in automobiles in half by the year 2000 while actually increasing the number of miles we drive by 22 percent. This can happen by simply making cost-effective and efficiency improvements in engines, drive trains, and chassis of our automobiles. Mellon also estimated that the Nation's buildings could be made to use 28 percent less energy in the year 2000 than we do today even though there would be 50 percent more homes and 100 percent more commercial floor space in that year. New homes can be built that use one-quarter of the energy of today's starts. Existing residences can be retrofitted to use 25 percent less energy.

States have a very important role to play in stimulating energy efficiency. They set the codes and standards which determine the amount of energy that is consumed by new homes and commercial buildings. They regulate the energy utilities which carry out home energy audits and provide financing for efficiency improvements. They provide tax incentives and low interest loans for energy efficiency improvments and they can implement Federal programs in the area of information dissemination, weatherization assistance, emergency planning, retrofit of schools and hospitals.

I am proud that my own home State of Florida is a leader in this field. In 1980, the legislature passed a Florida Energy Efficiency and Conservation Act which requires the public service commission to set energy conservation goals for electric and gas utilities in the State and requires the utilities to develop programs, including home energy audits, to meet these goals. The Florida Building Code was the first in the Nation to use the point system to encourage builders to find their own paths to energy efficiency.

The Florida Energy Extension Service and schools and hospital programs have been very active and are considered by many to be models for other States to emulate.

It therefore gives me a great deal of pleasure to bring the Energy Development and Applications Subcommittee to our State capitol and to learn about energy efficiency in Florida's future. At this time, I would like to recognize my colleague from New York, Mr. Fish, for any comments that he would like to make.

Mr. FISH. Thank you very much, Mr. Chairman. I, too, am very pleased to be here in your State of Florida today and to learn firsthand about the strides which Florida has taken to become more energy efficient.

At the outset I would like to commend you for your leadership in the energy area. I am sure that many people here are familiar with your interest and success. You and your predecessors on the committee worked to build the Space Shuttle. We now face an equally important challenge in our energy concerns and I, for one, commend you for the actions you have taken over your term as chairman.

Your committee, of course, has for the last 3 years worked on these particular areas. Although we can now claim a much brighter energy picture than we could have talked about a few years ago, I think the trend toward energy conservation has been encouraging—using less gasoline, less imported oil and so forth—but I don't think that we should be lulled into any sense of complacency because of the glut in the oil market today.

My State of New York, very much like your State of Florida, faces a very serious energy problem. We both import a significant portion of the petroleum we use, and in my State almost 70 percent of the petroleum is obtained from foreign suppliers. This issue has led the prior administration in Washington and the current administration to the desire to have a realistic replacement cost reflected in the price of petroleum products. So we took the route of decontrol, which has resulted in good strides, very firm strides in energy conservation. I believe this is the most cost effective and immediate means to deal with our dependence, through a least-cost strategy.

But what we are also talking about is a step, in my judgment, that once we decontrol and once the domestic petroleum price goes up to its replacement cost, its true cost, then the question becomes: How do you get the most use out of the energy you consume? How do you improve the efficiency of its use?

This, obviously, is the most cost effective strategy that we can follow. I look forward to hearing about the efforts of your State because conservation must continue to be the keystone of any national energy policy in the future, and I am confident that our distinguished witnesses today will be telling us about Florida's actions on this energy option and will give us some ideas that we can take back with us to Washington. Thank you.

Mr. FUQUA. Thank you very much, Mr. Fish.

I would like to call on another colleague, Congressman Ray McGrath who is in his first term in Congress but has been a very active, diligent, and faithful worker on the committee and has become very interested in many of the subjects under our jurisdiction.

Ray, we are happy to have you in Tallahassee.

Mr. MCGRATH. Thank you very much, Mr. Chairman. It is a pleasure to finally get here.

I am also pleased that we have scheduled these hearings today in Florida on Florida's energy future, but before we begin I, too, would like to join with my colleague, Congressman Fish from New York, and commend our distinguished chairman, Congressman Fuqua, for his long hours and devotion in guiding the Science and Technology Committee through many difficult journeys in this Congress.

In the energy area in particular we have been faced with many tough budgetary decisions, and I believe that under your guidance, Mr. Chairman, we have a structurally well-balanced energy program that will allow us to make the best use of our taxpayers' money.

Our hearing today focuses on one important part of our energy picture. Clearly, no one answer will emerge as a total solution to our Nation's problems of reliance on foreign imports and rising energy prices. Neither conservation nor production alone can accomplish our needed results. I believe that we must press forward wih the development of all of our domestic energy resources. However, it would be a travesty if we lost sight of the virtues of conservation and increased energy efficiency. This is an energy resource which has been endorsed virtually by every major energy study in the past several years and one which I believe we must aggressively develop.

According to many of these studies, pursuing energy efficiency is certainly within our Nation's economic interests in keeping within our goal of becoming a more productive nation.

The prestigious National Academy of Sciences concluded in their study, "Energy in Transition," that, "As energy prices rise, the Nation will face important losses in economic growth if we do not significantly increase the economy's energy efficiency." From this perspective it would be wise to see what our committee can do to help our Nation make more efficient use of our energy supplies.

In closing, I would like to join my colleagues in welcoming the witnesses who are with us today. I am confident that these hearings today will provide us with a great deal of insight into Florida's energy picture and the future promise of conservation. Again, Mr. Chairman, thank you for inviting me today and allowing me to make these remarks.

Mr. FUQUA. Thank you very much, Ray.

Our first panel will be made up of Mr. John Haslam, administrator of the codes and standards section of the department of veteran and community affairs for the State; James M. Harvey, assistant director of the Governor's energy office; and Dick Woodson, the acting director of the center for governmental responsibility at the University of Florida.

We will start with you first, Mr. Haslam.

**STATEMENTS OF JOHN HASLAM, ADMINISTRATOR OF THE CODES AND STANDARDS SECTION OF THE DEPARTMENT OF VETERAN AND COMMUNITY AFFAIRS FOR THE STATE; JAMES M. HARVEY, ASSISTANT DIRECTOR OF THE GOVERNOR'S ENERGY OFFICE; AND DICK WOODSON, ACTING DIRECTOR OF THE CENTER FOR GOVERNMENTAL RESPONSIBILITY, UNIVERSITY OF FLORIDA**

Mr. HASLAM. Thank you very much, Mr. Chairman.

My name is Jack Haslam and I am representing the office of codes and standards of the Florida Department of Veteran and Community Affairs. I appreciate the opportunity to discuss energy efficiency in Florida's future with you this morning.

The Florida peninsula is in a precarious and unique position with respect to energy. Most of Florida's energy is provided by the two fuels in shortest supply and most likely to experience steep price increases in the years ahead, petroleum and natural gas.

Petroleum has supplied approximately 70 percent of the State's energy every year since 1970. The percentage of energy supplied by natural gas decreased from 23 percent in 1970 to 16 percent in 1979. Only slightly more than 15 percent of the State's energy is provided by other sources. Few States, other than major petroleum States have such a high degree of petroleum dependency; few States are so vulnerable to the persistently rising price of imported petroleum.

Electricity, a secondary energy source, has become the principal form of energy in our residential sector. Florida's per capita consumption of electricity is higher than in any other State. Since generation of electricity in conventional steam plants achieves approximately 33 percent efficiency in conversion of primary energy to electricity, high dependence on electricity leads to energy inefficiency.

Buildings are the largest consumers of energy in this state. In 1979 buildings consumed about 50 percent, transportation 37 percent, industry and other uses about 13 percent. Residential buildings alone account for about 23 percent of Florida's total energy consumption. Air-conditioning and water heating are the highest energy users in Florida dwellings. These uses consume a much higher percentage of total residential energy than in other states.

Conversely, heating Florida homes uses far less energy than the national average. The majority of energy used in the home is electrical energy. Over 48 percent of the electricity generated in the State in 1979 was for residential use. This compared to the national average of about 33 percent.

Let's talk about a few of the economic concerns of energy conservation. Florida's average charge per kilowatt-hour last year was 5.6 cents. This year the average charge per kilowatt-hour is 7.2 cents. The public service commission has projected that by 1989 it will be 12½ cents. In 8 years, it will be double what it was last year.

The price of oil which supplies 47.9 percent of Florida's generating capacity has increased from about $4.15 to $33.40 per barrel over the past 10 years.

Florida's population growth has averaged 275,000 per year over the last 8 years. Last year alone the population increased by about one-half a million.

The doubling time for electrical usage in Florida is 18 years. Every year we add the equivalent of a city the size of Orlando, but no new generating plants.

Florida utilities are beginning to experience difficulty in meeting peak electrical demands. The urgency of addressing this problem was underscored this past winter when Florida experienced a peak electrical demand that was not projected to occur until 1989. The cost of adding a kilowatt of generating capacity has climbed to approximately $1,500. This problem is further aggravated by the influx of new residents each year as retirees and others move to the Sunshine State.

Statistics can be alarming, impressive and dramatic and I am sure you have all heard statements like these before, but the plain unadulterated fact is something we all know. Energy costs have risen over the past few years to the extent that everyone is feeling the pinch. We have all experienced continually escalating utility bills and are shocked by the realization that these costs may soon exceed our mortgage payments, if they don't already, and it is a foregone conclusion that energy costs will continue to rise throughout the foreseeable future.

The rising cost of energy and of electrical generating plant investment have made it imperative that some sort of a brake be applied to indiscriminate use of building practices which result in energy-inefficient homes. Widespread use of strip heat, insufficient levels of insulation and large areas of unshaded glass have been common until recently. Convenience, aesthetics and low initial cost have been the major marketing tools used to sell Florida homes. Only after energy costs increased dramatically did homeowners become aware of the high price they were actually paying for their inefficient homes.

Florida's housing market has changed markedly during the last 5 years. Sky-high construction costs and mortgage rates have made single-family detached housing unaffordable for most of the population. Townhouses, condominiums and apartments are becoming more predominant. The high cost of operating precode homes that are not energy efficient is causing an increased demand for efficient homes.

There is a definite need for a gage by which the energy efficiency of buildings can be assessed. Until recently, there was no uniform standard by which a residence could be evaluated. Home buyers anxious to avoid high energy bills had to depend on the word of the builder or the former owner of that home that it was energy efficient. With the statewide uniform adoption of the Florida Model Energy Efficiency Code for New Building Construction, an energy-efficiency standard was established for new buildings.

The Florida Model Energy Efficiency Code for Building Construction which is administered by the Florida Department of Veteran and Community Affairs, is an ideal vehicle for conserving energy in Florida's buildings because it is an adaptable climate-specific standard which is administered uniformly statewide. Because it is adaptable, building construction practices which affect peakload demand can be encouraged or penalized, resulting in a decreased energy consumption rate and a decreased need for costly new powerplants. Because the code is climate-specific, it addresses the way energy is actually used in each area of Florida. Because it is uniformly administered throughout the State, it can be used as a standard against which energy consumption can be measured.

A cursory look through Florida's Model Energy Efficiency Code shows that residential buildings, single or multiple family dwellings, for example, can be calculated and specified to meet the energy code requirements through three main approaches.

The first approach is specified in section 5 of the code and is called energy code compliance by component performance. It consists of calculating and specifying each of the energy consuming elements of the building envelope and its heating and cooling systems, water systems, et cetera. Even though this method results in a dwelling which generally uses less energy than a precode dwelling, specifying for this particular section of the code can lead to less than optimal use of money.

The second approach, Energy Code compliance through systems analysis, is lengthy and by its nature involves the study of the annual energy consumption of the dwelling during an entire year. This method is rather difficult and requires certification by a registered architect or engineer. It is a very powerful method, however, when used by someone who understands the relative values of the energy consumed by the various systems and who can then optimize the specifications.

The third approach involves the tabular method of compliance, sections 9 and 9(h), which enumerate the total amount of energy used by the various energy consuming systems in a residence. In particular, attention is focused on the heating system, the air-conditioning system, and the hot water system.

Since the State of Florida extends through almost 6 degrees of latitude—from 24° N. to 31° N. one would expect differences between the climates of Pensacola at the northwest corner of the State and Miami in the southeastern part of the State. Thus, in preparing sections 9 and 9(h) of the code, the State was divided into three regions which take into account these climatic differences.

The section 9 and 9(h) tabular method for residential applications utilizes a simple points system which provides a gauge for assessing the energy efficiency of houses in Florida. Section 9, single-family,

and 9(h) for multifamily housing, currently provide a 100-point energy performance index known as the EPI as a maximum for houses before a building permit can be obtained. Points are assessed relative to the amount of energy consumption taking place through each construction option. The lower the number of points, the more efficiently the house will perform.

The advantages of the section 9 tabular method are many. The entire approach is an incentive approach. A number is assigned to each energy consuming feature of a building. The numbers are added and if the result is equal to or less than the base points level of 100, the building complies. The points are in direct relation to the amount of energy consumed in each feature of electrically operated systems. Points for gas or oil are not in proportion to the energy consumed.

For example, if 18 points out of 100 are for the walls, then 18 percent of the annual energy will actually be transferred through the walls. What this means is that section 9 gives us a basis for comparing houses of equal size. Using the point system, residences can be compared one to another. The lower the points, the lower the electric bill. For example, a 70-point house is 30 percent better than a 100-point house of the same size.

Sections 9 and 9(h) are easy to understand and calculate. There is no need to understand U values, Btu's or energy transfer calculations. A section 9 or 9(h) calculation takes only a few minutes.

Sections 9 and 9(h) can be used as a design guide book. A builder or designer can calculate different alternatives quickly to determine which improvements yield the greatest benefit to cost ratios. Many common misconceptions will be corrected. For example, it can be readily seen that ceiling insulation rated R–30 is not much better in Florida than R–19. A builder can see for himself that greater benefits can be obtained at less cost by moving the air-conditioning ducts from the attic into the conditioned space.

The calculations can be used for the basis of residential energy audits, and special training for such audits is minimal.

Solar energy is encouraged, as is reclaiming heat from air-conditioning for heating hot water.

Sections 9 and 9(h) are in harmony with Florida's climate. Incentives are provided for shading windows, using ceiling fans, locating heat producing appliances outside the conditioned space, use of efficient fuels, use of efficient air-conditioners and heating systems.

The code can be advanced with predictable results. This year we have 100 points for compliance. Next year the level may be set at 95 points. If so, a 5-percent reduction in energy consumption would result.

A reporting and checking system has been incorporated. The front side of the calculation sheet is to be sent in to the department of veteran and community affairs every year. These sheets show the square footages, points, and types of major systems. From the forms we can determine the extent of city, county and statewide improvements in residential construction. The greatest value of section 9 lies not in satisfying the code, but as a tool for the designer in choosing the dwelling's energy systems, overhangs and orientation of windows so as to minimize the EPI of the house. The wisest choice will almost always be the one that reduces the EPI by

the most points for the least cost since a residence with an EPI of 50 has the potential to use 50 percent less energy than a code-complying house with an EPI of 100, given similar sizes of houses and similar lifestyles.

The Energy Code is also dramtically influencing the energy consumption of nonresidential buildings. Professional engineers and architects using the code as a design tool are achieving large reductions in building energy consumption. In reported cases, new code-designed buildings are performing 40 to 50 percent more efficiently than precode designed buildings. This trend can be amplified through advancement of the code by adding new technologies and techniques, such as hybrid passive mechanical systems and daylighting techniques, further code simplification for ease of use and continued training for the ever-increasing number of construction industry personnel interested in designing energy efficient buildings.

Finally, energy savings resulting from buildings meeting Florida's Energy Code are cumulative. Based on a building official survey, houses built to meet the Energy Code Standards in Florida in 1979 saved roughly 237.4 billion Btu's in the first year of use, and about the same amount each year thereafter. When houses built in 1980 and the first half of 1981 are added to this increasing sum of energy savings, the total exceeds 969 billion Btu's for an equivalent of 503,000 barrels of oil saved. Building energy efficient buildings will mean lower operating costs for the Florida consumer and a decreased need for expensive new generating capacity expenses that Florida can ill afford.

Thank you, Mr. Chairman.

[The prepared statement of Mr. Haslam follows:]

FLORIDA
DEPARTMENT OF VETERAN AND COMMUNITY AFFAIRS

Statement Regarding

"Energy Efficiency in Florida's Future"

Good morning Mr. Chairman and Committee members. My name is Jack Haslam and I am representing the Codes and Standards office of the Florida Department of Veteran and Community Affairs. I appreciate the opportunity to discuss Energy Efficiency in Florida's Future with you.

FLORIDA'S ENERGY SYSTEM: The Florida peninsular is in a precarious and unique position with respect to energy. Most of Florida's energy is provided by the two fuels in shortest supply and most likely to experience steep price increases in the years ahead, petroleum and natural gas. Petroleum has supplied approximately 70 percent of the state's energy every year since 1970. The percentage of energy supplied by natural gas decreased from 23% in 1970 to 16% in 1979. Only slightly more than 15% of the State's energy is provided by other sources. Few states, other than major petroleum producing states, have such a high degree of petroleum dependency; few states are so vulnerable to the persistently rising price of imported petroleum.

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Let's talk about a few of the economic concerns of energy consumption:

- Florida's average charge/kwh last year was 5.6¢,
- This year the average charge/kwh is 7.2¢,
- The PSC has projected that by 1989 it will be 12.5¢. In 8 years, it will be double what it was last year.
- The price of oil which supplies 47.9% of Florida's generating capacity, has increased from about $4.15 to $33.40 per barrell over the past ten years.

- Florida's population growth has averaged 275,000 per year over the last 8 years. Last year alone the population increased by about one half million people,

- The doubling time for electrical useage in Florida is 18 years. Every year we add the equivalent of a city the size of Orlando, but no new generating plants,

- Florida utilities are beginning to experience difficulty in meeting peak electrical demands. The urgency of addressing this problem was underscored this past winter when Florida experienced a peak electrical demand that was not projected to occur until 1989. The cost of adding a kw of generating capacity has climbed to approximately $1500. This problem is further aggravated by the influx of new residents each year as retirees and others move to the sunshine state,

- Statistics can be alarming, impressive and dramatic and I'm sure you have all heard statements like these before, but the plain unadulterated fact is something we all know. Energy costs have risen over the past few years to the extent that everyone is feeling the pinch. We have all experienced continually escalating utility bills and are shocked by the realization that these costs may soon exceed our mortgage payments - if they don't already and it is a foregone conclusion that energy costs will continue to rise throughout the foreseeable future.

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There is a definite need for a gauge by which the energy efficiency of buildings can be assessed. Until recently, there was no uniform standard by which a residence could be evaluated. Homebuyers anxious to avoid high energy bills had to depend on the word of the builder or former owner that a home was energy efficient. With the statewide uniform adoption of the Florida Model Energy Efficiency Code for new Building Construction, an energy-efficiency standard was established for new construction.

FLORIDA'S MODEL ENERGY CODE: The Florida Model Energy Efficiency Code for Building Construction, which is administered by the Florida Department of Veteran and Community Affairs, is an ideal vehicle for conserving energy in Florida's buildings because it is an adaptable climate-specific standard which is administered uniformly statewide. Because it is adaptable, building construction practices which affect peak load demand can be encouraged or penalized, resulting in a decreased energy consumption rate and a decreased need for costly new power plants. Because the Code is climate-specific, it addresses the way energy is actually used in each area of Florida. Because it is uniformly administered throughout the state, it can be used as a standard against which energy consumption can be measured.

A cursory look through Florida's "Model Energy Efficiency Code" shows that residential buildings (single or multiple family), for example, can be calculated and specified to meet the energy code requirements through three main approaches.

The first approach is specified in Section 5 of the Code and is called "Energy Code Compliance by Component Performance". It consists of calculating and specifying each of the energy consuming elements of the building envelope and its heating and cooling systems, water heater, etc. Even though this method results in a dwelling which generally uses less energy than a precode dwelling, specifying for this particular section of the Code can lead to less than optimal use of money.

The second approach, "Energy Code Compliance Through Systems Analysis", is lengthy, and by its nature, involves the study of the annual energy consumption of the dwelling during an entire year. This method is rather difficult and requires certification by a registered Architect or Engineer. It is a very powerful method when used by someone who understands the relative values of energy consumed by the various systems, and who can then optimize the specifications.

The third approach involves the tabular method of compliance (Sections 9 and 9H), which enumerates the total amount of energy used by the various energy consuming systems in a residence. In particular, attention is focused on:

(1) The heating system;
(2) The air conditioning system; and,
(3) The hot water system.

Since the State of Florida extends through almost six degrees of latitude (from 24 4' N. to 31 N.), one would expect differences between the climates of Pensacola (at the northwest end of the State) and Miami (in the southeast corner of the State). Thus, in preparing Sections 9 and 9H of the Code, the State was divided into three regions which take into account these climatic differences.

The Section 9 and 9H tabular method for residential applications utilizes a simple points system which provides a gauge for assessing the energy efficiency of houses in Florida. Sections 9 (single family) and 9H (multifamily housing), currently provide a 100 point Energy Performance Index (EPI) as a maximum for houses before a building permit can be obtained. Points are assigned relative to the amount of energy consumption taking place through each construction option. The lower the number of points, the more efficiently the house will perform.

The advantages of the Section 9 tabular method are many:

- The entire approach is an incentive approach. A number is assigned to each energy consuming feature of a building. The numbers are added and, if the result is equal to or less than the Base Points level of 100, the building complies. The points are in direct relation to the amount of energy consumed in each feature for electrically operated systems. (Points for gas or oil are not in proportion to energy consumed.) For example, if 18 points out of 100 are for the walls, then 18 percent of the annual energy will be actually transferred through the walls. What this means, is that Section 9 gives us a basis for comparing houses of equal size. Using the point system, residences can be compared one to another. The lower the points, the lower the electric bill. For example, a 70 point house is 30 percent better than a 100 point house of the same size.

- Sections 9 and 9H are easy to understand and calculate. There is no need to understand U values, BTU's, or energy transfer calculations. A Section 9 or 9H calculation takes only a few minutes.

- Sections 9 and 9H can be used as a design guide book. A builder or designer can calculate different alternatives quickly to determine which improvements yield the greatest benefit-to-cost ratios. Many common misconceptions will be corrected. For example, it can readily be seen that ceiling insulation rated R30 is not much better than R-19. A builder can see for himself that greater benefits can be obtained at less cost by moving the air conditioning ducts from the attic into the conditioned space.

- The calculations can be used for the basis of residential energy audits and special training for such audits is minimal.

- Solar energy is encouraged, as is reclaiming heat from air conditioning for heating hot water.

- Sections 9 and 9H are in harmony with Florida's climate. Incentives are provided for shading windows, using ceiling fans, locating heat-producing appliances outside the conditioned space, use of efficient fuels, and use of efficient air conditioners and heating systems.

- The Code can be advanced with predictable results. This year, we have 100 points for compliance; next year the level may be set at 95 points. If so, a five percent reduction would result.

- A reporting and checking system has been incorporated. The front side of the calculation sheet is to be sent into the Department of Veteran and Community Affairs every year. These sheets show the square footages, points, and types of major systems. From the forms, we can determine the extent of city, county and statewide improvements in residential construction. The greatest value of Section 9 lies not in satisfying the Code, but as a tool for the designer in choosing the dwelling's energy systems, overhangs and orientation of windows, so as to minimize the EPI of the house. The wisest choice will almost always be the one that reduces the EPI by the most points for the least cost, since a residence with an EPI of 50 has the potential to use 50 percent less energy than a Code complying house of EPI=100 (given similar life-styles and house sizes).

The Energy Code is also dramatically influencing the energy consumption of non-residential buildings. Professional engineers and architects using the Code as a design tool are achieving large reductions in building energy consumption. In reported cases, new Code-designed buildings are performing 40 to 50 percent more efficiently than pre-Code designed buildings. This trend can be amplified through advancement of the Code by adding new technologies and techniques (e.g. hybrid passive/mechanical systems and daylighting), further Code simplification for ease of use, and continued training for the ever-increasing number of construction industry personnel interested in designing energy-efficient buildings.

Finally, energy savings resulting from buildings meeting Florida's Energy Code are cumulative. Based on a building official survey, houses built to meet Energy Code Standards in 1979 saved roughly 237.4 billion Btu's in the first year of use, and about the same amount each year thereafter. When houses built in 1980 and the first half of 1981 are added to this increasing sum of energy savings, the total comes to in excess of 969 billion Btu's, or an equivalent of 503,000 barrels of oil saved. Building energy efficient buildings will mean lower operating costs for the Florida consumer and a decreased need for expensive new power generating capacity expenses that Florida can ill afford.

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Mr. FUQUA. Thank you very much.

Now, we will hear from James M. Harvey, the assistant director of the Governor's energy office.

Mr. HARVEY. Thank you, sir.

On behalf of Governor Graham and the citizens of Florida, I would like to welcome you to Florida. Chairman Fuqua has long been recognized as a leader in Washington on energy matters, and has been a strong and vigorous voice for energy conservation. I am confident that the work of the subcommittee in Tallahassee today will be most productive.

In your invitation to the Governor's energy office to testify today you asked that we address three major areas of energy policy:

The role of energy efficiency improvements in meeting Florida's future energy needs in a least-cost manner; programs and policies of the State of Florida to improve the efficiency of energy use; and the experience of various groups in implementing energy efficient programs.

I would like to address these points in reverse order.

First, a short overview of the work of the Governor's energy office; then a synopsis of the major energy legislation enacted in the State of Florida in recent years; and, finally, the role of conservation and renewable energy resources in helping meet Florida's energy future, showing the partnership which must be established between the States, the Federal Government, local governments, and the public.

The Governor's energy office. Under Florida law, the Governor's energy office, a section of the executive office of the Governor, coordinates all energy-related functions of State government. The office is charged with energy data collection, energy forecasting and energy policy analysis. We are also charged with preparing energy emergency plans for handling fuel shortages and promoting the development of renewable energy resources, such as solar energy, alcohol fuels, and the recovery of energy from wastes. In addition, the energy office coordinates energy research and development programs by preparing inventories of existing energy R. & D. efforts and seeking methods to fund new projects, such as ocean thermal energy conversion development. But the chief responsibility of the energy office is promoting energy conservation. The office provides technical assistance on energy conservation in a variety of ways to citizens and to key sectors of the Florida economy such as the hospitality industry, manufacturers, farmers, and the general public. A variety of programs are underway in each of these sectors. Additional programs are directed at the public sector, including local governments and public schools, to improve their ability to reduce energy waste through effective conservation and efficiency measures. These programs are showing results as targeted audiences are beginning to reduce the amount of energy they consume. These beneficial results have come almost exclusively from the expenditure of Federal funds in Florida for energy conservation and could be lessened should Federal funds be withdrawn.

The Governor's energy office publishes and distributes hundreds of thousands of information pieces on energy for the public, directed at specific energy consumers. A unique statewide media campaign entitled, "Save It, Florida" is underway in which the Gover-

nor urges citizens to reduce energy waste. Through the cooperative extension service, materials on energy conservation are made available to the residents of all 67 counties of the State.

The energy office also coordinates or implements a number of other Federal conservation programs. We administer the institutional building conservation program to disburse Federal funds for energy audits and retrofitting the State's public educational, local government and medical facilities. The energy office developed a residential conservation service program for Florida in conjunction with the Florida Public Service Commission. In this program, the State's utilities perform energy audits of homes and businesses.

The Federal appropriate technology program is also administered by our staff. Approximately 60 small-scale projects have been selected and monitored by the Governor's energy office over the past 3 years in this program. All members of the subcommittee are being provided a copy of our annual report which describes in detail the functions of our office.

Over 90 percent of the budget of the Governor's energy office is provided by Federal funds. One important source of funds is the Energy Extension Service which is under the jurisdiction of the Energy Development and Applications Subcommittee. Although the House of Representatives has passed a budget for 1982 which would end all Federal funding to State energy offices, except for the institutional building conservation program and the low income weatherization program, we are hopeful that the House will adopt the proposed State energy conservation block grant bill, H.R. 4163, H.R. 4039 or S. 1544, S. 1166, which would continue the Federal assistance.

If Federal funds are removed, either the Florida Legislature would need to provide replacement funding or these programs will be discontinued.

Mr. Chairman, many of the future programs of our office are directly related to the work of your committee and Congress.

Florida's energy policies and programs. In addition to implementing federally-funded energy programs, the State of Florida operates a number of programs created by the legislature to encourage energy conservation and the development of renewable energy resources, such as solar energy. Let me briefly mention a few of these.

The Florida Energy Efficiency and Conservation Act of 1980 requires the utilities of the State to operate energy conservation programs. According to figures I have reviewed, this act is expected to reduce energy consumption in the State in 1990 by 6.7 percent compared with 1980 utility forecasts for 1990, and will cost approximately $800 million.

In 1976, the legislature established the Florida Solar Energy Center at Cape Canaveral to conduct research on solar energy. The center, receiving over $1 million a year in State funds, certifies solar energy systems and conducts numerous solar energy research projects. Many of its projects, such as a study of passive solar cooling in homes, are funded by programs developed by this subcommittee.

The Institute of Food and Agricultural Sciences at the University of Florida has received over $9 million in State funds to conduct

research and education in low-energy agricultural practices. Included in this program is the center for biomass energy systems which studies the potential for providing energy from crops and trees and agricultural wastes.

In 1977, the legislature adopted energy conservation standards for new building construction. In 1980, the legislature expanded this legislation to become the Florida Model Energy Code, specifically designed for Florida climate and building conditions.

The legislature has also enacted a number of tax measures which promote conservation and renewable energy resources. We have removed the State 4 percent sales tax on solar energy systems; we have rescinded a portion of the motor fuel tax on the sale of gasohol; and the people of Florida voted in favor of a constitutional amendment to exempt property tax on solar and other renewable resource equipment.

The Florida Legislature has required new State government buildings to be built according to energy conservation standards. Presently we are converting two large State boilers to use wood as a fuel instead of oil. In addition to conservation of energy and promotion of solar energy, the legislature has taken several important actions in the area of production of energy. Florida's electric power plant siting law has been a model for the Nation. Our environmental review legislation governing the construction of major facilities such as oil refineries, which are called developments of regional impact is likewise a model for other States.

### EFFICIENCY IN MEETING FUTURE ENERGY NEEDS

Mr. Chairman, the third and final area you asked the Florida's Energy Office to address is that of "energy efficiency in meeting Florida's future energy needs in a least-cost manner."

Like other States, in coming years we anticipate that Florida will become considerably more energy efficient. As more energy efficient automobiles are sold, as new homes become increasingly more efficient, as citizens observe conservation in the operation of air-conditioners and heaters, as manufacturers develop processes which use less energy, the amount of energy consumed per person should decline.

The Governor's Energy Office projects that by 1990, energy consumption per person in Florida will have fallen 9.4 percent below the 1980 level, from 252.5 million Btu's per person in 1980 to 228.8 million Btu's per person in 1990. This reduction will greatly benefit our State's economy because it will take less fuel to achieve the same level of economic activity and to maintain the same standard of living, thereby saving a large amount of energy dollars for reinvestment in the economy.

This is a very significant development, but it is not enough. Preliminary studies by the staff of the Governor's Energy Office indicate that Florida's per person consumption of energy could be cut an additional 10 percent or more by 1990 and still retain essentially the same level of economic strength and standard of living while enjoying the benefits of substantially reduced energy consumption.

Reducing energy waste by making our Nation more energy efficient is critically important. This will strengthen our economy and

will improve our national defense by making us less vulnerable to the actions of other nations. Florida is commited to this goal, but we have a particularly difficult challenge because of our unusually high dependence on imported petroleum and because of our State's high growth rate. This high growth rate means that even if we practice conservation to the fullest, we still face the probable need for new capital construction for energy facilities.

I am sure, Mr. Chairman, that you and the members of the subcommittee are quite familiar with the national studies on the benefits of conservation, studies such as those conducted by the Solar Energy Research Institute, the Harvard Business School, the Audubon Society, and the Carnegie-Mellon University Energy Productivity Center. All of these studies confirm that conservation and renewable energy resources are less costly than other sources of energy. The studies indicate that conservation and solar can offset the need for nonrenewable energy resources at the equivalent cost of about one-third of conventional, nonrenewable fuels.

To achieve the goal of energy conservation requires a partnership between the Federal Government, State governments, local governments and the private sector. I fear, however, Mr. Chairman, that the Federal Government is rapidly abdicating its responsibility to promote and encourage conservation and renewable energy resources. The current administration maintains that total reliance on the marketplace will solve all of our energy problems. They say that large energy price increases automatically bring conservation. While this concept may be valid, it may not be in the public interest. Many citizens own automobiles that are not efficient, and need expanded access to public transportation. Many of Florida's citizens, particularly low-income persons and the elderly, are living in homes that are very energy wasteful. They need assistance in making their homes more energy efficient and information to make sound choices. Industries need the results of energy research to indicate the best methods of energy conservation. Large-scale research projects, such as ocean thermal energy conversion, require substantial amounts of capital that private industry and State governments on their own cannot raise.

Concerning energy research, which is a prime responsibility of the subcommittee, it would be inappropriate for each State to operate competing research programs. This would lead to duplication and confusion. Since the results of scientific investigation are applicable in most cases across the Nation, it is far better for the Federal Government to take the lead in energy research and development.

The administration has requested a sharp reduction in Federal funding for conservation and renewable energy resource projects. This could have a very serious effect on Florida's energy future. Let me cite a few examples:

Florida has been the location of a number of important federally funded energy research projects. These include, for example: The project in Bartow to convert animal wastes to methane, and the project in Fort Lauderdale to convert municipal wastes to methane. Methane is the principal component of natural gas. The project at Disney World to produce electricity from refuse; the project at Lakeland to study the feasibility of using eucalyptus as a fuel; the

electric powerplant at Starke which uses wood as a fuel; and several projects of the Florida Solar Energy Center at Cape Canaveral.

If Federal funding is not available, States cannot be expected to conduct large, high-risk energy research projects on their own. Many projects in Florida would be threatened.

Let me cite two examples: A Florida consortium has submitted a proposal for a demonstration ocean thermal energy conservation pilot plant to be located off Key West. This plant will cost more than $400 million and would become the first commercial-size OTEC plant in the world.

Florida State University in Tallahassee has applied for Federal assistance to construct a demonstration of photovoltaic cells to produce electricity for the new FSU radio and television center. Since this is a highly advanced engineering concept, Federal assistance is critical to its success.

In addition to the need for Federal energy research and development funds, we need a continuing Federal commitment to energy conservation programs. The 1982 budget for the Department of Energy includes, for example, almost a termination of Federal efforts to find ways to reduce energy use in new buidings. Also, there is evidence that the administration is about to request that Congress terminate the energy tax credits which reduce the cost of a residential solar energy system by 40 percent and the cost of home insulation by 15 percent. The loss of these programs could adversely affect conservation efforts in Florida.

In addition, the administration has essentially terminated all energy emergency planning, saying that the marketplace would handle energy shortages. Florida's experience as a participant in an international test this past year which simulated a 10- to 20-percent shortfall energy emergency showed us that without an effective Federal plan, energy emergencies will cause substantial dislocation in Florida. Without Federal coordination, we would have 50 States responding in 50 different ways; the potential for severe economic disruption would be increased.

In summary, Mr. Chairman, I would like to simply say that achieving an energy-efficient future at the least cost will require a partnership between the Federal Government, State governments, local governments and the private sector. We in Florida are prepared to do our part, but to create this energy future requires a substantial Federal commitment. We look to you and the subcommittee to accept that responsibility and to continue a strong commitment.

Thank you.

[The prepared statement of Mr. Harvey follows:]

TESTIMONY OF JAMES M. HARVEY, OCTOBER 26, 1981

ON BEHALF OF GOVERNOR GRAHAM AND THE CITIZENS OF FLORIDA, I WOULD LIKE TO WELCOME YOU TO FLORIDA. CHAIRMAN FUQUA HAS LONG BEEN A RECOGNIZED LEADER IN WASHINGTON ON ENERGY MATTERS, AND HAS BEEN A STRONG AND VIGOROUS VOICE FOR ENERGY CONSERVATION; I AM CONFIDENT THAT THE WORK OF THE SUBCOMMITTEE IN TALLAHASSEE TODAY WILL BE MOST PRODUCTIVE.

IN YOUR INVITATION TO THE GOVERNOR'S ENERGY OFFICE TO TESTIFY TODAY, YOU ASKED THAT WE ADDRESS THREE MAJOR AREAS OF ENERGY POLICY:

---THE ROLE OF ENERGY EFFICIENCY IMPROVEMENTS IN MEETING FLORIDA'S FUTURE ENERGY NEEDS IN A LEAST-COST MANNER;

---PROGRAMS AND POLICIES OF THE STATE OF FLORIDA TO IMPROVE THE EFFICIENCY OF ENERGY USE; AND

---THE EXPERIENCE OF VARIOUS GROUPS IN IMPLEMENTING ENERGY EFFICIENCY PROGRAMS.

I WOULD LIKE TO ADDRESS THESE POINTS IN REVERSE ORDER. FIRST, A SHORT OVERVIEW OF THE WORK OF THE GOVERNOR'S ENERGY OFFICE; THEN A SYNOPSIS OF THE MAJOR ENERGY CONSERVATION LEGISLATION ENACTED IN FLORIDA IN RECENT YEARS; AND, FINALLY, THE ROLE OF CONSERVATION AND RENEWABLE ENERGY RESOURCES IN HELPING MEET FLORIDA'S ENERGY FUTURE, SHOWING THE PARTNERSHIP WHICH MUST BE ESTABLISHED BETWEEN

THE STATES, THE FEDERAL GOVERNMENT, LOCAL GOVERNMENTS, AND THE PUBLIC.

THE GOVERNOR'S ENERGY OFFICE

UNDER FLORIDA LAW, THE GOVERNOR'S ENERGY OFFICE, A SECTION OF THE EXECUTIVE OFFICE OF THE GOVERNOR, COORDINATES ALL ENERGY-RELATED FUNCTIONS OF STATE GOVERNMENT. THE OFFICE IS CHARGED WITH ENERGY DATA COLLECTION, ENERGY FORECASTING AND ENERGY POLICY ANALYSIS. WE ARE ALSO CHARGED WITH PREPARING ENERGY EMERGENCY PLANS FOR HANDLING FUEL SHORTAGES, AND PROMOTING THE DEVELOPMENT OF RENEWABLE ENERGY RESOURCES, SUCH AS SOLAR ENERGY, ALCOHOL FUELS AND RECOVERY OF ENERGY FROM WASTES. IN ADDITION, THE ENERGY OFFICE COORDINATES ENERGY RESEARCH AND DEVELOPMENT PROGRAMS BY PREPARING INVENTORIES OF EXISTING ENERGY R&D EFFORTS AND SEEKING METHODS TO FUND NEW PROJECTS, SUCH AS OCEAN THERMAL ENERGY CONVERSION (OTEC) DEVELOPMENT.

BUT THE CHIEF RESPONSIBILITY OF THE ENERGY OFFICE IS PROMOTING ENERGY CONSERVATION. THE OFFICE PROVIDES TECHNICAL ASSISTANCE ON ENERGY CONSERVATION IN A VARIETY OF WAYS TO CITIZENS AND TO KEY SECTORS OF THE FLORIDA ECONOMY SUCH AS THE HOSPITALITY INDUSTRY, MANUFACTURERS, FARMERS, AND THE GENERAL PUBLIC. A VARIETY OF PROGRAMS ARE UNDERWAY IN EACH OF THESE SECTORS. ADDITIONAL PROGRAMS ARE DIRECTED TO THE PUBLIC SECTOR, INCLUDING LOCAL GOVERNMENTS AND PUBLIC SCHOOLS, TO IMPROVE THEIR ABILITY TO REDUCE ENERGY WASTE THROUGH EFFECTIVE CONSERVATION AND EFFICIENCY MEASURES. THESE PROGRAMS ARE SHOWING RESULTS AS TARGETED

AUDIENCES ARE BEGINNING TO REDUCE THE AMOUNT OF ENERGY THEY CONSUME. THESE BENEFICIAL RESULTS COME ALMOST EXCLUSIVELY FROM THE EXPENDITURE OF FEDERAL FUNDS IN FLORIDA FOR ENERGY CONSERVATION AND COULD BE LESSENED SHOULD FEDERAL FUNDS BE WITHDRAWN.

THE GOVERNOR'S ENERGY OFFICE PUBLISHES AND DISTRIBUTES HUNDREDS OF THOUSANDS OF INFORMATION PIECES ON ENERGY FOR THE PUBLIC, DIRECTED AT SPECIFIC ENERGY CONSUMERS. A UNIQUE STATEWIDE MEDIA CAMPAIGN TITLED, "SAVE IT, FLORIDA" IS UNDERWAY IN WHICH THE GOVERNOR URGES CITIZENS TO REDUCE ENERGY WASTE. THROUGH THE COOPERATIVE EXTENSION SERVICE, MATERIALS ON ENERGY CONSERVATION ARE MADE AVAILABLE TO THE RESIDENTS OF ALL 67 COUNTIES OF THE STATE.

THE ENERGY OFFICE ALSO COORDINATES OR IMPLEMENTS A NUMBER OF OTHER FEDERAL CONSERVATION PROGRAMS. WE ADMINISTER THE INSTITUTIONAL BUILDING CONSERVATION PROGRAM TO DISBURSE FEDERAL FUNDS FOR ENERGY AUDITS AND RETROFITTING THE STATE'S PUBLIC EDUCATIONAL, LOCAL GOVERNMENT AND MEDICAL FACILITIES. THE ENERGY OFFICE DEVELOPED THE RESIDENTIAL CONSERVATION SERVICE PROGRAM FOR FLORIDA IN CONJUNCTION WITH THE PUBLIC SERVICE COMMISSION. IN THIS PROGRAM, THE STATE'S UTILITIES PERFORM ENERGY AUDITS OF HOMES AND BUSINESSES. THE FEDERAL APPROPRIATE TECHNOLOGY PROGRAM IS ALSO ADMINISTERED BY OUR STAFF. APPROXIMATELY 60 SMALL-SCALE PROJECTS HAVE BEEN SELECTED AND MONITORED BY THE GOVERNOR'S ENERGY OFFICE OVER THE PAST THREE YEARS IN THIS PROGRAM. ALL MEMBERS OF THE SUBCOMMITTEE ARE BEING PROVIDED A COPY OF OUR

ANNUAL REPORT WHICH DESCRIBES IN DETAIL THE FUNCTIONS OF OUR OFFICE.

OVER 90% OF THE BUDGET OF THE GOVERNOR'S ENERGY OFFICE IS PROVIDED BY FEDERAL FUNDS. ONE IMPORTANT SOURCE OF FUNDS IS THE ENERGY EXTENSION SERVICE, WHICH IS UNDER THE JURISDICTION OF THE ENERGY DEVELOPMENT AND APPLICATIONS SUBCOMMITTEE. ALTHOUGH THE HOUSE OF REPRESENTATIVES HAS PASSED A BUDGET FOR 1982 WHICH WOULD END ALL FEDERAL FUNDING TO STATE ENERGY OFFICES, EXCEPT FOR THE INSTITUTIONAL BUILDING CONSERVATION PROGRAM AND THE LOW-INCOME WEATHERIZATION PROGRAM, WE ARE HOPEFUL THAT THE HOUSE WILL ADOPT THE PROPOSED STATE ENERGY CONSERVATION BLOCK GRANT BILL, HR 4163/HR 4039 OR S.1544/S.1166, AND WILL CONTINUE FEDERAL ASSISTANCE.

IF FEDERAL FUNDS ARE REMOVED, EITHER THE FLORIDA LEGISLATURE WOULD NEED TO PROVIDE REPLACEMENT FUNDING, OR THESE PROGRAMS WILL BE DISCONTINUED. MR. CHAIRMAN, MANY OF THE FUTURE PROGRAMS OF OUR OFFICE ARE DIRECTLY RELATED TO THE WORK OF YOUR COMMITTEE AND CONGRESS.

FLORIDA'S ENERGY POLICIES AND PROGRAMS

IN ADDITION TO IMPLEMENTING FEDERALLY-FUNDED ENERGY PROGRAMS, THE STATE OF FLORIDA OPERATES A NUMBER OF PROGRAMS CREATED BY THE LEGISLATURE TO ENCOURAGE ENERGY CONSERVATION AND THE DEVELOPMENT OF RENEWABLE ENERGY RESOURCES, SUCH AS SOLAR ENERGY. LET ME BRIEFLY MENTION A FEW OF THESE:

-- THE FLORIDA ENERGY EFFICIENCY AND CONSERVATION ACT OF 1980

REQUIRES THE UTILITIES OF THE STATE TO OPERATE ENERGY CONSERVATION PROGRAMS; ACCORDING TO FIGURES I HAVE REVIEWED, THIS ACT IS EXPECTED TO REDUCE ENERGY CONSUMPTION IN THE STATE IN 1990 BY 6.7%, COMPARED WITH 1980 UTILITY FORECASTS FOR 1990, AND WILL COST APPROXIMATELY $800 MILLION.

-- IN 1976, THE LEGISLATURE ESTABLISHED THE FLORIDA SOLAR ENERGY CENTER AT CAPE CANAVERAL TO CONDUCT RESEARCH ON SOLAR ENERGY. THE CENTER, RECEIVING OVER ONE MILLION DOLLARS A YEAR IN STATE FUNDS, CERTIFIES SOLAR ENERGY SYSTEMS, AND CONDUCTS NUMEROUS SOLAR ENERGY RESEARCH PROJECTS. MANY OF ITS PROJECTS, SUCH AS A STUDY OF PASSIVE SOLAR COOLING IN HOMES, ARE FUNDED BY PROGRAMS DEVELOPED BY THIS SUBCOMMITTEE.

-- THE INSTITUTE OF FOOD AND AGRICULTURAL SCIENCES AT THE UNIVERSITY OF FLORIDA HAS RECEIVED OVER $9 MILLION IN STATE FUNDS TO CONDUCT RESEARCH AND EDUCATION IN LOW-ENERGY AGRICULTURAL PRACTICES. INCLUDED IN THIS PROGRAM IS THE CENTER FOR BIOMASS ENERGY SYSTEMS WHICH STUDIES THE POTENTIAL FOR PROVIDING ENERGY FROM CROPS, TREES AND AGRICULTURAL WASTES.

-- IN 1977, THE LEGISLATURE ADOPTED ENERGY CONSERVATION STANDARDS FOR NEW BUILDING CONSTRUCTION. IN 1980, THE LEGISLATURE EXPANDED THIS LEGISLATION TO BECOME THE FLORIDA MODEL ENERGY CODE, SPECIFICALLY DESIGNED FOR FLORIDA CLIMATE AND BUILDING CONDITIONS.

-- THE LEGISLATURE ALSO HAS ENACTED A NUMBER OF TAX MEASURES WHICH PROMOTE CONSERVATION AND RENEWABLE ENERGY RESOURCES. WE HAVE REMOVED THE STATE 4% SALES TAX ON SOLAR ENERGY SYSTEMS, AND HAVE RESCINDED A PORTION OF THE MOTOR FUEL TAX ON THE SALE OF GASOHOL. THE PEOPLE OF FLORIDA VOTED IN FAVOR OF A CONSTITUTIONAL AMENDMENT TO EXEMPT PROPERTY TAX ON SOLAR AND OTHER RENEWABLE RESOURCE EQUIPMENT.

-- THE FLORIDA LEGISLATURE HAS REQUIRED NEW STATE GOVERNMENT BUILDINGS TO BE BUILT ACCORDING TO ENERGY CONSERVATION STANDARDS. PRESENTLY, WE ARE CONVERTING TWO LARGE STATE BOILERS TO USE WOOD AS A FUEL, INSTEAD OF OIL.

-- IN ADDITION TO CONSERVATION OF ENERGY AND PROMOTION OF SOLAR ENERGY, THE LEGISLATURE HAS TAKEN SEVERAL IMPORTANT ACTIONS IN THE AREA OF PRODUCTION OF ENERGY. FLORIDA'S ELECTRIC POWER PLANT SITING LAW HAS BEEN A MODEL FOR THE NATION. OUR ENVIRONMENTAL REVIEW LEGISLATION GOVERNING THE CONSTRUCTION OF MAJOR FACILITIES SUCH AS OIL REFINERIES, WHICH ARE CALLED "DEVELOPMENTS OF REGIONAL IMPACT" IS LIKEWISE A MODEL FOR OTHER STATES.

EFFICIENCY IN MEETING FUTURE ENERGY NEEDS

MR. CHAIRMAN, THE THIRD, AND FINAL AREA YOU ASKED THE FLORIDA'S ENERGY OFFICE TO ADDRESS IS THAT OF "ENERGY EFFICIENCY IN MEETING FLORIDA'S FUTURE ENERGY NEEDS IN A LEAST-COST MANNER".

LIKE OTHER STATES, IN COMING YEARS, WE ANTICIPATE THAT FLORIDA WILL BECOME CONSIDERABLY MORE ENERGY EFFICIENT. AS MORE ENERGY EFFICIENT AUTOMOBILES ARE SOLD, AS NEW HOMES BECOME INCREASINGLY MORE EFFICIENT, AS CITIZENS OBSERVE CONSERVATION IN THE OPERATION OF AIR CONDITIONERS AND HEATERS, AS MANUFACTURERS DEVELOP PROCESSES WHICH USE LESS ENERGY, THE AMOUNT OF ENERGY CONSUMED PER PERSON SHOULD DECLINE. THE GOVERNOR'S ENERGY OFFICE PROJECTS THAT BY 1990, ENERGY CONSUMPTION PER PERSON IN FLORIDA WILL HAVE FALLEN 9.4% BELOW THE 1980 LEVEL, FROM 252.5 MILLION BTU PER PERSON IN 1980, TO 228.8 MILLION BTU PER PERSON IN 1990. THIS REDUCTION WILL GREATLY BENEFIT OUR STATE'S ECONOMY, BECAUSE IT WILL TAKE LESS FUEL TO ACHIEVE THE SAME LEVEL OF ECONOMIC ACTIVITY AND TO MAINTAIN THE SAME STANDARD OF LIVING--THERBY SAVING A LARGE AMOUNT OF ENERGY DOLLARS FOR REINVESTMENT IN THE ECONOMY.

THIS IS A VERY SIGNIFICANT DEVELOPMENT, BUT IT IS NOT ENOUGH. PRELIMINARY STUDIES BY THE STAFF OF THE GOVERNOR'S ENERGY OFFICE INDICATE THAT FLORIDA'S PER PERSON CONSUMPTION OF ENERGY COULD BE CUT AN ADDITIONAL TEN PERCENT, OR MORE, BY 1990 AND STILL RETAIN ESSENTIALLY THE SAME LEVEL OF ECONOMIC STRENGTH AND STANDARD OF LIVING--WHILE ENJOYING THE BENEFITS OF SUBSTANTIALLY REDUCED ENERGY CONSUMPTION.

REDUCING ENERGY WASTE BY MAKING OUR NATION MORE ENERGY EFFICIENT IS CRITICALLY IMPORTANT. THIS WILL STRENGTHEN OUR ECONOMY, AND WILL IMPROVE OUR NATIONAL DEFENSE, BY MAKING US LESS VULNERABLE TO THE ACTIONS OF OTHER NATIONS. FLORIDA IS COMMITTED TO THIS

GOAL, BUT WE HAVE A PARTICULARLY DIFFICULT CHALLENGE, BECAUSE OF OUR UNUSUALLY HIGH DEPENDENCE ON IMPORTED PETROLEUM, AND BECAUSE OF OUR STATE'S HIGH GROWTH RATE. THIS HIGH RATE OF GROWTH MEANS THAT EVEN IF WE PRACTICE CONSERVATION TO THE FULLEST, WE STILL FACE THE PROBABLE NEED FOR NEW CAPITAL CONSTRUCTION FOR ENERGY FACILITIES.

I AM SURE, MR. CHAIRMAN, THAT YOU AND THE MEMBERS OF THE SUB-COMMITTEE ARE QUITE FAMILIAR WITH NATIONAL STUDIES ON THE BENEFITS OF CONSERVATION; STUDIES SUCH AS THOSE CONDUCTED BY THE SOLAR ENERGY RESEARCH INSTITUTE, THE HARVARD BUSINESS SCHOOL, THE AUDUBON SOCIETY, AND THE CARNEGIE-MELLON UNIVERSITY ENERGY PRODUCTIVITY CENTER. ALL THESE STUDIES CONFIRM THAT CONSERVATION AND RENEWABLE ENERGY RESOURCES ARE LESS COSTLY THAN OTHER SOURCES OF ENERGY. THE STUDIES INDICATE THAT CONSERVATION AND SOLAR CAN OFFSET THE NEED FOR NON-RENEWABLE ENERGY RESOURCES AT THE EQUIV-ALENT COST OF ABOUT ONE-THIRD OF CONVENTIONAL, NON-RENEWABLE FUELS.

TO ACHIEVE THE GOAL OF ENERGY CONSERVATION REQUIRES A PARTNERSHIP BETWEEN THE FEDERAL GOVERNMENT, STATE GOVERNMENTS, LOCAL GOVERNMENTS AND THE PRIVATE SECTOR. I FEAR, HOWEVER, MR. CHAIRMAN, THAT THE FEDERAL GOVERNMENT IS RAPIDLY ABDICATING ITS RESPONSIBILITY TO PROMOTE AND ENCOURAGE CONSERVATION AND RENEWABLE ENERGY RESOURCES. THE CURRENT ADMINISTRATION MAINTAINS THAT TOTAL RELIANCE ON THE MARKETPLACE WILL SOLVE ALL OF OUR ENERGY PROBLEMS; THEY SAY THAT LARGE ENERGY PRICE INCREASES AUTOMATICALLY BRING CONSERVATION.

WHILE THIS CONCEPT MAY BE VALID, IT MAY NOT BE IN THE PUBLIC INTEREST. MANY CITIZENS OWN AUTOMOBILES THAT ARE NOT EFFICIENT, AND NEED EXPANDED ACCESS TO PUBLIC TRANSPORTATION. MANY OF FLORIDA'S CITIZENS, PARTICULARLY LOW-INCOME PERSONS AND THE ELDERLY, ARE LIVING IN HOMES THAT ARE VERY ENERGY WASTEFUL; THEY NEED ASSISTANCE IN MAKING THEIR HOMES MORE ENERGY EFFICIENT AND INFORMATION TO MAKE SOUND CHOICES. INDUSTRIES NEED THE RESULTS OF ENERGY RESEARCH TO INDICATE THE BEST METHODS OF ENERGY CONSERVATION. LARGE-SCALE RESEARCH PROJECTS, SUCH AS OCEAN THERMAL ENERGY CONVERSION (OTEC), REQUIRE SUBSTANTIAL AMOUNTS OF CAPITAL THAT PRIVATE INDUSTRY AND STATE GOVERNMENTS, ON THEIR OWN, CANNOT RAISE.

CONCERNING ENERGY RESEARCH, WHICH IS A PRIME RESPONSIBILITY OF THE SUBCOMMITTEE, IT WOULD BE INAPPROPRIATE FOR EACH STATE TO OPERATE A COMPETING ENERGY RESEARCH PROGRAM. THIS WOULD LEAD TO DUPLICATION AND CONFUSION. SINCE THE RESULTS OF SCIENTIFIC INVESTIGATION ARE APPLICABLE, IN MOST CASES, ACROSS THE NATION, IT IS FAR BETTER FOR THE FEDERAL GOVERNMENT TO TAKE THE LEAD IN ENERGY RESEARCH AND DEVELOPMENT.

THE ADMINISTRATION HAS REQUESTED A SHARP REDUCTION IN FEDERAL FUNDING FOR CONSERVATION AND RENEWABLE ENERGY RESOURCE PROJECTS. THIS COULD HAVE A VERY SERIOUS EFFECT ON FLORIDA'S ENERGY FUTURE. LET ME CITE A FEW EXAMPLES:

FLORIDA HAS BEEN THE LOCATION OF A NUMBER OF IMPORTANT FEDERALLY-FUNDED ENERGY RESEARCH PROJECTS. THESE INCLUDE, FOR EXAMPLE:

-- THE PROJECT IN BARTOW TO CONVERT ANIMAL WASTES TO METHANE, AND THE PROJECT IN FORT LAUDERDALE TO CONVERT MUNICIPAL WASTES TO METHANE. METHANE IS THE PRINCIPAL COMPONENT OF NATURAL GAS.

-- THE PROJECT AT DISNEY WORLD TO PRODUCE ELECTRICITY FROM REFUSE.

-- THE PROJECT AT LAKELAND TO STUDY THE FEASIBILITY OF USING EUCALYPTUS AS A FUEL. (METHANOL)

-- THE ELECTRIC POWER PLANT AT STARKE WHICH USES WOOD AS A FUEL; AND

-- SEVERAL PROJECTS OF THE FLORIDA SOLAR ENERGY CENTER AT CAPE CANAVERAL.

IF FEDERAL FUNDING IS NOT AVAILABLE, STATES CANNOT BE EXPECTED TO CONDUCT LARGE HIGH-RISK ENERGY RESEARCH PROJECTS ON THEIR OWN. MANY PROJECTS IN FLORIDA WOULD BE THREATENED. LET ME CITE TWO EXAMPLES:

-- A FLORIDA CONSORTIUM HAS SUBMITTED A PROPOSAL FOR A DEMONSTRATION OCEAN THERMAL ENERGY CONSERVATION (OTEC) PILOT PLANT TO BE LOCATED OFF KEY WEST. THIS PLANT WILL COST MORE THAN 400 MILLION DOLLARS AND WOULD BECOME THE FIRST COMMERCIAL-SIZE OTEC PLANT IN THE WORLD.

-- FLORIDA STATE UNIVERSITY IN TALLAHASSEE HAS APPLIED FOR FEDERAL ASSISTANCE TO CONSTRUCT A DEMONSTRATION OF PHOTOVOLTAIC CELLS TO PRODUCE ELECTRICITY FOR THE NEW FSU RADIO AND TELEVISION CENTER. SINCE THIS IS A HIGHLY ADVANCED ENGINEERING CONCEPT, FEDERAL ASSISTANCE IS CRITICAL TO ITS SUCCESS.

IN ADDITION TO THE NEED FOR FEDERAL ENERGY RESEARCH AND DEVELOPMENT FUNDS, WE NEED A CONTINUING FEDERAL COMMITMENT TO ENERGY CONSERVATION PROGRAMS. THE 1982 BUDGET FOR THE DEPARTMENT OF ENERGY INCLUDES, FOR EXAMPLE, ALMOST A TERMINATION OF FEDERAL EFFORTS TO FIND WAYS TO REDUCE ENERGY USE IN NEW BUILDINGS. ALSO, THERE IS EVIDENCE, THAT THE ADMINISTRATION IS ABOUT TO REQUEST THAT CONGRESS TERMINATE THE ENERGY TAX CREDITS WHICH REDUCE THE COST OF A RESIDENTIAL SOLAR ENERGY SYSTEM BY 40%, AND THE COST OF HOME INSULATION BY 15%. THE LOSS OF THESE PROGRAMS COULD ADVERSELY EFFECT CONSERVATION EFFORTS IN FLORIDA.

IN ADDITION, THE ADMINISTRATION HAS ESSENTIALLY TERMINATED ALL ENERGY EMERGENCY PLANNING, SAYING THAT THE "MARKETPLACE" WOULD HANDLE ENERGY SHORTAGES. FLORIDA'S EXPERIENCE AS A PARTICIPANT IN AN INTERNATIONAL TEST THIS PAST YEAR, WHICH SIMULATED A 10-20 PERCENT SHORTFALL ENERGY EMERGENCY, SHOWED US THAT WITHOUT AN EFFECTIVE FEDERAL PLAN ENERGY EMERGENCIES WILL CAUSE SUBSTANTIAL DISLOCATION IN FLORIDA. WITHOUT FEDERAL COORDINATION WE WOULD HAVE FIFTY STATES RESPONDING IN FIFTY DIFFERENT WAYS; THE POTENTIAL FOR SEVERE ECONOMIC DISRUPTION WOULD BE INCREASED.

91-487 O—82——3

IN SUMMARY, MR. CHAIRMAN, I WOULD LIKE SIMPLY TO SAY THAT ACHIEVING AN ENERGY-EFFICIENT FUTURE AT THE LEAST COST WILL REQUIRE A PARTNERSHIP BETWEEN THE FEDERAL GOVERNMENT, STATE GOVERNMENTS, LOCAL GOVERNMENTS AND THE PRIVATE SECTOR. WE IN FLORIDA ARE PREPARED TO DO OUR PART, BUT TO CREATE THIS ENERGY FUTURE REQUIRES A SUBSTANTIAL FEDERAL COMMITMENT. WE LOOK TO YOU AND THE SUB-COMMITTEE TO ACCEPT THAT RESPONSIBILITY AND TO CONTINUE A STRONG COMMITMENT.

THANK YOU.

BIOSKETCH: JAMES MICHAEL HARVEY

James M. Harvey, 35, is the Assistant Energy Director, sharing with the Energy Director the administration of all programs and responsibilities of the Governor's Energy Office. Prior to assuming the position of Assistant Director, Mr. Harvey served as Deputy Director for Operations and Information Outreach, administering the allocation, energy conservation, and information and education functions of the Energy Office.

Previous to joining the Energy Office in April 1979, Mr. Harvey served, from 1974 to 1979, as a senior planner in the Bureau of Comprehensive Planning, Division of State Planning, Florida Department of Administration. From 1972 to 1974, he was Director of Planning for the Mid-Cumberland Health Planning Council in Nashville, Tennessee, and from 1969 to 1970, was a planner with the Chicago (Illinois) Transit Authority. Harvey served in the U.S. Air Force from 1963 to 1967, with a tour of duty in Viet Nam.

Mr. Harvey holds a BA degree in pre-law from Delta State University and a MS degree in urban and regional planning from Florida State University. He is a member of Omicron Delta Kappa National Leadership Fraternity, Pi Gamma Mu National Social Science Honor Society, and Phi Kappa Tau. As a student, he was listed in "Who's Who Among Students in American Colleges and Universities".

Married to a teacher, Harvey has one son. His interests include working on the family farm, SCUBA diving, and hunting and fishing.

Mr. FUQUA. Thank you very much, Mr. Harvey.

Now we will hear from Mr. Woodson.

Mr. WOODSON. I want to provide members a brief review of the energy policy in Florida in a chronological manner. The message I have may be different from what most of the speakers said here this morning. That message is that since 1973, Florida has regressed from a leadership position in energy policy to which other States looked for guidance to a position largely dependent on the Federal Government for policy and funds for programs.

In 1973 and 1974, at the time of the first oil embargo by petroleum exporting countries, Florida was recognized around the country as a leader in energy policy. In early 1973, months before the oil embargo, Gov. Reubin Askew had recognized the importance of energy supply and demand and called on the legislature to respond to an emerging problem. The legislature responded by creating the Florida Energy Committee, composed of legislators and citizens. The committee was directed to study policies affecting energy consumption, analyze available energy resources, recommend a comprehensive system of energy policies, and propose necessary changes in existing law. The committee was very active, publishing a number of reports with recommendations for legislative and executive action in energy policy.

The embargo in the fall of 1973 eliminated the doubts of those who had questioned Governor Askew's predictions of energy difficulties. In 1974, the legislature responded to the impact of the embargo by passing a number of energy bills.

The department of administration was given responsibility for the petroleum allocation and conservation program that had been established by Federal law. The Emergency Petroleum Allocation Act, passed by Congress immediately after the declaration of the embargo, gave priority to State and local government functions during supply interruptions and established a petroleum setaside program for State administrations. Under the act, the Governor delegated responsibility for allocation in Florida to the secretary of the department of administration.

In order to assist in the allocation of petroleum supply and to provide other information about energy supply, distribution and use, the legislature created the energy data center, also in the department of administration. The legislature believed that accurate data was essential to the development and maintenance of an energy profile which could be used to deal rationally with present energy problems and anticipate future problems. To assist further in the planning and development of energy policy, the life of the energy committee was extended an additional year, to 1976, and the committee was charged to study the interrelationships of growth and public demand for energy.

Upon recommendation of the energy committee, the 1974 legislature enacted three bills dealing with conservation and renewable energy resources. The board of regents was directed to develop a plan for the solar energy center to coordinate research and development within the State university system. The solar energy center was created in part to take advantage of the Federal Non-Nuclear Energy Research and Development Act of 1974. This act provided Federal funds for demonstration and research projects for new

energy sources or techniques. The Florida Solar Energy Center was established at Cape Canaveral as part of the State university system in the department of education.

In another area of renewable energy, the legislature passed the Florida Resource Recovery and Management Act. A council was created within the department of pollution control and charged with developing a resource recovery program, providing technical assistance to local government and industry, assisting in the construction of facilities, and developing a pilot project. The primary task was to encourage recycling and resource recovery as an energy source.

In the area of conservation, the legislature adopted the Energy Conservation in Buildings Act of 1974. The purpose of this act was to design and construct new State buildings to minimize the consumption of energy used in operation and maintenance. The department of general services was directed to use a life-cycle cost analysis of all proposed building designs so that fuel costs over the life of the building would be minimized.

In 1974, Florida already had in place a program that provided for energy planning. In response to a 1972 legislative mandate, a State comprehensive plan was being developed to provide long-range guidance for the orderly social, economic, and physical growth of the State. This plan eventually included an energy element, which emphasized the importance of supply and consumption of energy in Florida.

It is remarkable what the Governor and legislature accomplished in 1973 and 1974. By anticipating a severe energy problem and reacting quickly and effectively after a crisis situation, Florida had in place by 1974 the core of an energy planning structure that could develop energy policy for legislative implementation. Attention was given not only to the immediate problem of a shortage of petroleum, but to longer term planning for conservation and alternative energy strategies. Florida legislation was used as a model across the country by other States, and the State was described in national periodicals as innovative in coping with the energy problem.

The crisis resulting from the embargo subsided in the fall of 1974 and by the time the legislature met in 1975 energy had been set aside as simply another problem among many. The Governor's attention had shifted from energy to economic development, so there was no strong rush for action as there had been in 1974.

In addition, the Energy Committee in a series of reports had recommended a number of far-reaching programs which had angered some members of the legislature. Although the committee in its 1975 report, "Energy Law in Florida," had recognized the laudable efforts of the legislature in 1974, it called for an even more comprehensive, coordinated energy policy which would transform energy impact into a causative rather than a resultant factor in State policy decisionmaking.

The legislature reacted by abolishing the energy committee. The energy data center, the petroleum allocation and energy conservation office, and the responsibilities of the energy committee were consolidated in the department of administration. The State energy office was created administratively by the Lieutenant Governor,

the head of the department of administration to coordinate these functions. Although some energy functions were now in a central office in the executive branch, the energy office was given little emphasis by the Governor and energy programs were not in favor in the legislature. The nonstatutory status left the office with little power in following years to push for the establishment of a State energy policy. Additionally, funding for the office was kept at a low level.

The legislature also reacted negatively to two other reports from groups it had created in 1974. Increased funding for major new programs by the solar energy center and the resource recovery council was denied.

The reaction of the 1975 legislature to the initiatives begun only a year before can be explained by the lack of a pressing problem, such as lines at gasoline stations, and lack of leadership on the part of the Governor. The inaction in 1975 began the decline of Florida's role as a leader in energy policy. Although there have been scattered pieces of legislation on energy since then, it was not until 1980 that the legislature again seriously addressed energy issues.

While Florida was doing very little in 1975, the Federal Government began to take action in energy policy. The Energy Policy and Conservation Act of 1975 established energy use reduction goals for the States and required that States adopt energy conservation plans consistent with Federal guidelines in order to be eligible for Federal funds. The major thrust of the act was for each State to adopt energy conservation standards for new buildings. Contingency plans for energy use reduction during severe supply interruptions were also to be developed by the States. The State energy office was given the responsibility for implementation of EPCA in Florida. Legislation required for eligibility for funds was passed in subsequent years.

In 1975, Congress passed the Energy Conservation and Production Act. The act contained provisions to encourage energy conservation by electric utilities. Grants were made available for State consumer services to assist customers in presentations before State public service commissions. A weatherization program for low-income housing was established.

In 1976, in Florida the legislature passed the Solar Energy Standards Act. This law formally recognized the solar energy center and encouraged the development of solar energy as an alternative energy source.

The Florida Solar Energy Center was given responsibility for testing and setting standards for solar energy systems, participating in demonstration plants, disseminating information on solar energy and solar products and providing assistance to State agencies.

Although little energy legislation passed in 1976, the legislature did adopt an amendment to the development of regional impact process under the Environmental Land and Water Management Act, which included energy considerations.

The Department of Veteran and Community Affairs now must consider energy use among other factors in deciding to permit a development. Unfortunately, energy was not defined for the purpose

of the act, and DVCA has interpreted energy only to mean electrical energy.

In 1977, the legislature took a step backward in developing, energy policy. The energy element being developed under the State comprehensive plan had legal authority in 1976, but the legislature amended this statute so that the plan would be advisory only except where specifically authorized by law. State agency budgets no longer had to be consistent with the energy element of the plan and the plan did not have the force of law.

In 1977, the legislature adopted an energy policy. The policy is rather extensive. It lays out a number of very laudatory goals, but it must be kept in mind that in spite of the impressive language of this policy, on its own the policy has no legal effect. A policy is similar to the legislative intent for a statute which denotes the general purpose of principle rather than a rule of law. Until the policy is in effect, it has no meaning.

As can be seen in 1975, 1976, and 1977, Florida had no comprehensive energy legislation. Various pieces of energy legislation passed and the legislature passed an energy policy, but the policy had no legal effect and the legislature did not compose a comprehensive, coherent guide for the State.

The energy office remained a low profile, executive branch creation existing for administrative convenience. The primary purpose of the energy office was to receive and disburse Federal funds for various energy programs created by Congress.

During these 3 years, many other States, such as California, Oregon, and Wisconsin, developed their own energy policy and were looked to as leaders in the field. Florida was content to respond to Federal initiatives.

This 3-year period of relative inactivity ended in 1978 with the passage of the Energy Coordination Act, which amended existing energy legislation. The legislature stated, "Energy supply and demand questions have become a major area of concern to the State which must be dealt with by effective and well-coordinated State action."

The legislation is the major source of State energy policy and the basis for much of the duties of the energy office. The passage of the act can be attributed to three events in early 1978.

In January, at a statewide energy conference sponsored by the energy office, Governor Askew again called for strong measures to address the energy problem. Although the speech surprised many of those who had been critical of Askew for his lack of attention to energy since 1974, it received wide attention in the State press. Also at this conference, a Federal energy official was openly critical of the State for failing to pass significant energy legislation. In February, the League of Women Voters sponsored an energy briefing for legislators at which a number of speakers called for action. Finally, a newspaper article very critical of the energy office, the legislature and Governor Askew for Florida's lack of an energy policy appeared and was widely distributed just prior to the session.

In response to this, the legislature gave the department of administration primary responsibility for the implementation of the

energy policy adopted the previous year, but they gave the department very little power.

The energy office remained a nonstatutory agency in the office of the secretary of DOE. There were a number of significant duties given to the Energy Office, including planning renewable energy resource development, evaluating supply and demand trends, promoting energy conservation and distributing information materials, but there was no significant budget increase to carry out these duties and the power of the State energy office among agencies was limited to coordination responsibilities. Responsibilities for many tasks were shared with other agencies, such as the public service commission, the department of general services, and the Florida Solar Energy Center.

The result of this legislation was a strong energy policy statement but no real change in agency activity. The main function of the energy office was to carry out Federal programs using Federal funds and to attempt to coordinate and cooperate with other agencies in implementing State energy policy.

In 1979, a new Governor and new legislature brought a different emphasis to State energy policy. Governor Graham called for a major reorganization of executive functions, including energy responsibility. The reorganization act moved the energy office from DOA to the executive office of the Governor. Although this shift appeared to be one more of form than substance, it was argued that placing energy responsibility in the Governor's office would give the energy office greater power to influence energy policy decisions of other agencies and make energy a high profile issue to draw greater attention to it in decisionmaking.

This has not really proven to be the case, however, due to the energy responsibilities given to other State agencies and to the continued nonstatutory status of the energy office. Over 20 agencies in Florida have responsibility for energy policy, and there has been no common goal. Placing the energy office in the Governor's office without giving it primary responsibility for energy policy has done little to resolve conflicting agency policies. In 1981, over 95 percent of the budget of the energy office is Federal money to implement Federal programs. Less than 5 percent is State money for implementing state energy policy. The primary emphasis in the energy office remains that of responding to Federal initiative.

The energy office and Governor Graham, to their credit, developed an ambitious package of legislation for the 1980 session. A select committee on energy had been appointed in the house of representatives by Speaker Hyatt Brown, who was a member of the original Florida Energy Committee.

The Governor's package, however, was not well-received by the committee and, after long negotiations, a much diluted version passed the committee and the full house and senate. One piece of this legislation deserves attention here.

The Florida Energy Efficiency and Conservation Act requires the public service commission to adopt by rule energy conservation goals and objectives. I will leave it to Commissioner Cresse to respond to the intricacies of this act, but suffice it to say, it is a very-far-reaching piece of legislation.

The difference between this act and many of the other acts that have passed in Florida is that the Florida Energy Efficiency and Conservation Act was accompanied by ample authority and budget for the public service commission to implement it. This can be contrasted to the 1977 policy statement and the authority and funds provided to the energy office.

Energy again received little attention in the 1981 legislative session. Although the house select energy committee was changed to a permanent standing committee, the attention of the house was focused on other pressing problems.

Neither the senate nor the Governor were inclined to push for any substantial energy legislation. Two existing laws were affected; no new laws were passed.

After the 1981 session, Florida remains without a comprehensive State energy policy. There are several statutes with laudable objectives and statements of intent and other statutes with incentives for energy conservation and efficiency, but the State lacks clear, overall direction.

Although the Governor's energy office is responsible for energy policy in the State, its only real function is to coordinate Federal programs using Federal funds. The public service commission is the most important energy agency in Florida, with ample budget and authority, but its main emphasis is electrical energy. The Federal Government under the Reagan administration is moving to reduce the programs under which the Governor's energy office has been operating, which will further reduce the presence of that office.

If Florida is to have a comprehensive, effective energy policy, such as those implemented by many other States, a decision will have to be made whether to increase the funding and authority of the Governor's energy office, or to broaden the scope of the public service commission's jurisdiction. The alternative is to rely on the Federal Government to set energy policy for the State of Florida.

Thank you.

[The prepared statement and biographical sketch of Mr. Woodson follow:]

## ENERGY POLICY IN FLORIDA

Since 1973, Florida has regressed from a leadership position in energy policy, to which other states looked for guidance, to a position largely dependent on the federal government for policy and funds for programs. This article is a chronological description of the development of energy conservation law in Florida from 1973 to 1981.[1]

In 1973-74, at the time of the first oil embargo by petroleum exporting countries, Florida was recognized around the country as a leader in energy policy. In early 1973, months before the oil embargo, Governor Reubin Askew had recognized the importance of energy supply and demand and called on the Legislature to respond to an emerging problem.[2] The Legislature responded by creating the Florida Energy Committee, composed of legislators and citizens.[3] The Committee was directed to study policies affecting energy consumption, analyze available energy resources, recommend a comprehensive system of energy policies, and propose necessary changes in existing law. The Committee was very active, publishing a number of reports with recommendations for legislative and executive action in energy policy.

The embargo in the fall of 1973 eliminated the doubts of those who had questioned Governor Askew's predictions of energy difficulties. The 1974 Legislature responded to the impact of the embargo by passing a number of energy bills.

The Department of Administration was given responsibility for the petroleum allocation and conservation program that had

been established by federal law.[4] The Emergency Petroleum Allocation Act, passed by Congress immediately after the declaration of the embargo, gave priority to state and local government functions during supply interruptions and established a petroleum "set-aside" program for state administration.[5] Under the Act, the Governor delegated responsibility for allocation in Florida to the Secretary of the Department of Administration.[6]

In order to assist in the allocation of petroleum supply, and to provide other information about energy supply, distribution and use, the Legislature created the Energy Data Center, also in the Department of Administration.[7] The Legislature believed that accurate data was "essential to the development and maintenance of an energy profile," which could be used to deal rationally with present energy problems and anticipate future problems.[8] To assist further in the planning and development of energy policy, the life of the Energy Committee was extended an additional year, to 1976, and the Committee was charged to study the "interrelationships of growth and public demand for energy."[9]

Upon recommendation of the Energy Committee, the 1974 Legislature enacted three bills dealing with conservation and renewable energy sources. The Board of Regents was directed to develop a plan for a Solar Energy Center to coordinate research and development within the State University System.[10] The preamble to the Act recognized the rapid growth in energy consumption in the state, the increasing cost and scarcity of energy resources, the adverse environmental effects of fossil fuels, and the "vast potential" of solar energy.[11] The Solar Energy Center was created, in part, to take advantage of the Federal Nonnuclear Energy Research

and Development Act of 1974.[12] This Act provided federal funds for demonstration and research projects for new energy sources or techniques. The Florida Solar Energy Center was established at Cape Canaveral as part of the State University System in the Department of Education.

In another area of renewable energy, the Legislature passed the Florida Resource Recovery and Management Act.[13] A council was created within the Department of Pollution Control and charged with developing a resource recovery program, providing technical assistance to local government and industry, assisting in the construction of facilities, and developing a pilot project. The primary task was to "encourage recycling and resource recovery as an energy source."[14]

In the area of conservation, the Legislature adopted the Energy Conservation in Buildings Act of 1974.[15] The purpose of this Act was to design and construct new state buildings to minimize the consumption of energy used in operation and maintenance. The Department of General Services was directed to use a life-cycle cost analysis of all proposed building designs so that fuel costs over the life of the building would be minimized.

In 1974, Florida already had in place a program that provided for energy planning. In response to a 1972 legislative mandate, a state comprehensive plan was being developed to provide long-range guidance for the orderly social, economic, and physical growth of the state.[16] This plan eventually included an energy element, which emphasized the importance of supply and consumption of energy in Florida.

It is remarkable what the Governor and Legislature accomplished in 1973 and 1974. By anticipating a severe energy problem and reacting quickly and effectively after a crisis situation, Florida had in place, by 1974, the core of an energy planning structure that could develop energy policy for legislative implementation. Attention was given not only to the immediate problem of a shortage of petroleum, but to longer term planning for conservation and alternative energy strategies. Florida legislation was used as a model across the country by other states, and the state was described in national periodicals as innovative in coping with the energy problem.[17]

The crisis resulting from the embargo subsided in the fall of 1974 and by the time the Legislature met in 1975, energy had been put aside as simply another problem among many. The Governor's attention had shifted from energy to economic development, so there was no strong push for action as there had been in 1974. In addition, the Energy Committee in a series of reports had recommended a number of far-reaching programs which had angered some members of the Legislature. Although the Committee, in its 1975 report Energy Law in Florida, had recognized the laudable efforts of the Legislature in 1974, it called for a more comprehensive, coordinated energy policy which would transform energy impact into a causative rather than a resultant factor in state policy decision-making.[18]

The Legislature reacted by abolishing the Energy Committee. The Energy Data Center, the Petroleum Allocation and Energy Conservation Office, and the responsibilities of the Energy Committee were consolidated in the Department of Administration.[19] The

State Energy Office was created administratively by the Lieutenant Governor, the head of the Department of Administration, to coordinate these functions. Although some energy functions were now in a central office in the Executive Branch, the Energy Office was given little emphasis by the Governor and energy programs were not in favor in the Legislature. The nonstatutory status left the office with little power in following years to push for the establishment of a state energy policy. Additionally, funding for the office was kept at a low level.

The Legislature also reacted negatively to two other reports from groups it had created in 1974. Increased funding for major new programs by the Solar Energy Center and the Resource Recovery Council was denied.[20]

The reaction of the 1975 Legislature to the initiatives begun only a year before can be explained by the lack of a pressing problem, such as lines at gasoline stations, and lack of leadership on the part of the Governor. The inaction in 1975 began the decline of Florida's role as a leader in energy policy. Although there have been scattered pieces of legislation on energy since then, it was not until 1980 that the Legislature again seriously addressed energy issues.

While Florida was doing very little in 1975, the federal government began to take action in energy policy. The Energy Policy and Conservation Act of 1975 (EPCA) established energy use reduction goals for the states and required that states adopt energy conservation plans consistent with federal guidelines in order to be eligible for federal funds.[21] The major thrust of

the Act was for each state to adopt energy conservation standards for new buildings. Contingency plans for energy use reduction during severe supply interruptions were also to be developed by the states. The State Energy Office was given the responsibility for implementation of EPCA in Florida. Legislation required for eligibility for funds was passed in subsequent years.[22]

In 1976, the Energy Conservation and Production Act (ECPA) was enacted by Congress.[23] The Act contained provisions to encourage energy conservation by electric utilities. Grants were made available for state consumer services to assist customers in presentations before state public service commissions. A weatherization program for low income housing was established.

In 1976, the Legislature passed the Solar Energy Standards Act.[24] This law formally recognized the Solar Energy Center and encouraged the development of solar energy as an alternative energy source. Another significant statement of policy was included in the legislative intent section of the Act:

> [I]f present trends continue, Florida will increase present energy consumption six-fold by the year 2000. Because of this dramatic increase and because existing domestic conventional energy resources will not provide sufficient energy to meet the nation's future needs, new sources of energy must be developed and applied.[25]

The Florida Solar Energy Center was given responsibility for testing and setting standards for solar energy systems, participating in demonstration grants, disseminating information on solar energy and solar products, providing assistance to state agencies and promoting solar technology.[26]

Although little energy legislation passed in 1976, the Legislature did adopt an amendment to the Development of Regional Impact process under the Environmental Land and Water Management Act, which included energy considerations.[27] The Department of Veteran and Community Affairs (DVCA) now must consider energy use among other factors in deciding to permit a development.[28] Unfortunately, energy was not defined for the purpose of the Act, and DVCA has interpreted energy only to mean electrical energy.[29]

In 1977, the Legislature took a step backward in developing energy policy. The Energy Element being developed under the State Comprehensive Plan had legal authority in 1976. The Legislature amended this statute so that the plan would be advisory only except where specifically authorized by law.[30] State agency budgets no longer had to be consistent with the Energy Element of the plan, and the plan did not have the force of law.

The Energy Element has retained some viability as a policy document, but only in a limited capacity. The Department of Veteran and Community Affairs is required by executive order to use the State Comprehensive Plan to guide its decision-making process. The Department uses the Plan, and the Energy Element, when it reviews local comprehensive plans prepared pursuant to the Local Government Comprehensive Planning Act of 1975,[31] Ten-Year Site Plans, applications for electrical power plants under the Power Plant Siting Act,[32] industrial site applications under the Industrial Siting Act,[33] and in the Development of Regional Impact (DRI) process.[34] The Energy Element assumes formal status as a policy document when applied by DVCA, but the magnitude of

its impact depends on the vigor with which DVCA conducts the review process.

In 1977, the Legislature adopted an energy policy stating:

> It is the policy of the State of Florida to:
>
> (a) Develop and promote the effective use of energy in the state and discourage all forms of energy waste.
>
> (b) Play a leading role in developing and instituting energy management programs aimed at promoting energy conservation.
>
> (c) Include energy considerations in all planning.
>
> (d) Utilize and manage effectively energy resources used within state agencies.
>
> (e) Encourage local governments to include energy considerations in all planning and to support their work in promoting energy management programs.
>
> (f) Include the full participation of citizens in the development and implementation of energy programs.
>
> (g) Consider in its decisions the energy needs of each economic sector, including residential, industrial, commercial, agricultural, and governmental uses.
>
> (h) Promote energy education and the public dissemination of information on energy and its environmental, economic and social impact.
>
> (i) Encourage the research, development, demonstration, and application of alternative energy resources, particularly renewable energy resources.
>
> (j) Consider, in its decision-making, the social, economic, and environmental impacts of energy-related activities, so that detrimental effects of these activities are understood and minimized.
>
> (k) Develop and maintain energy-emergency-preparedness plans to minimize the effects of an energy shortage within Florida.[35]

Despite the impressive language of this policy, on its own it has no legal effect. A "policy" is similar to the legislative intent for a statute, denoting a general purpose or principle rather than a rule of law.[36]

As can be seen, 1975, 1976 and 1977 yielded no comprehensive energy legislation. Various pieces of energy legislation passed, and the Legislature passed an energy policy. But the policy had no legal effect, and the legislation did not comprise a comprehensive, coherent guide for the state. The Energy Office remained a low-profile, Executive Branch creation existing for administrative convenience. The primary purpose of the Energy Office was to receive and disburse federal funds for various energy programs created by Congress. During these three years many other states, such as California, Oregon and Wisconsin, developed their own energy policy and were looked to as leaders in the field. Florida was content to respond to federal initiatives.

This three-year period of relative inactivity ended in 1978 with the passage of the Energy Coordination Act, which amended existing energy legislation.[37] The Legislature stated "Energy supply and demand questions have become a major area of concern to the state which must be dealt with by effective and well coordinated state action." The legislation is the major source of state energy policy and the basis for much of the duties of the Energy Office. The passage of the Act can be attributed to three events in early 1978.

In January, at a statewide energy conference sponsored by the Energy Office, Governor Askew again called for strong measures

to address the energy problem. Although the speech surprised many of those who had been critical of Askew for his lack of attention to energy since 1974, it received wide attention in the state press. Also at this conference, a federal energy official was openly critical of the state for failing to pass significant energy legislation. In February, the League of Women Voters sponsored an energy briefing for legislators at which a number of speakers called for action. Finally, a newspaper article very critical of the Energy Office, the Legislature and Governor Askew for Florida's lack of energy policy appeared and was widely distributed just prior to the session.[38]

The Legislature gave the Department of Administration primary responsibility for the implementation of the energy policy adopted the previous year, but very little power. The Energy Office remained a non-statutory agency in the Office of the Secretary of DOA. There were a number of significant duties given to the Energy Office, including planning renewable energy resource development, evaluating supply and demand trends, promoting energy conservation and distributing information materials. But there was no significant budget increase to carry out these duties, and the power of the State Energy Office among agencies was limited to "coordination reponsibilities." Responsibility for many tasks was shared with other agencies, such as the Public Service Commission, the Department of General Services, and the Florida Solar Energy Center. The result of this legislation was a strong energy policy statement, but no real change in agency activity. The main function of the Energy Office was to carry out federal programs using federal funds and to attempt to

"coordinate" and "cooperate" with other agencies in implementing state energy policy.

In 1979, a new Governor and new Legislature brought a different emphasis to state energy policy. Governor Graham called for a major reorganization of executive functions, include energy responsibility. The Reorganization Act moved the Energy Office from DOA to the Executive Office of the Governor.[39] Although this shift appeared to be one more of form than substance, it was argued that placing energy responsibility in the Governor's Office would give the Energy Office greater power to influence energy policy decisions of other agencies and make energy a high-profile issue to draw greater attention to it in decision-making. This has not really proven to be the case, however, due to the energy responsibilities given to other state agencies and to the continued non-statutory status of the Energy Office. Over twenty agencies have responsibility for energy policy, and there has been no common goal. Placing the Energy Office in the Governor's Office without giving it primary responsibility for energy policy has done little to resolve conflicting agency policies. In 1981, over 95 percent of the budget of the Energy Office is federal money to implement federal programs; less than 5 percent is state money for implementing state energy policy. The primary emphasis in the Energy Office remains that of responding to federal initiatives.

The Energy Office and Governor Graham developed an ambitious package of legislation for the 1980 session. A Select Committee on Energy had been appointed in the House of Representatives by

Speaker Hyatt Brown, a member of the original Florida Energy Committee. The Governor's package was not well received by the Committee, and, after long negotiations, a much-diluted version passed the Committee, and the full House and Senate. One piece of this legislation deserves attention here.

The Florida Energy Efficiency and Conservation Act (FEECA) requires the Public Service Commission to adopt by rule energy conservation goals and objectives to be implemented by utilities.[40] The policy statement in the Act emphasizes reducing growth rates of electricity consumption and peak demand. The PSC adopted rules to implement the major goals of the Act, which are to reduce the growth rate of electrical peak demand to 72.25 percent, and overall electrical consumption to 75 percent, of that projected for 1989. To comply with these goals, utilities have submitted plans to the PSC for approval. Programs designed by utilities to achieve these goals will be monitored by the PSC. The goals will be used in any PSC proceeding to determine whether additional generating capacity is necessary. A caveat to the rules states that they "shall not be construed . . . to restrict growth in the supply of electric power or natural gas necessary to support economic development by industrial or commercial enterprises."[41] The Legislature created the Florida Energy Adivisory Council to advise the PSC in the development of the statewide energy conservation measures. The Council was also authorized to recommend legislation to implement such programs.[42] FEECA also created the Florida Energy Trust Fund to provide loans for utility test programs and money for education and research projects.

It should be noted that the Florida Energy Efficiency and Conservation Act of 1980 was accompanied by ample authority and budget for the PSC to implement it. This can be contrasted to the 1977 policy statement and the authority and funds provided to the Energy Office.

Energy again received little attention in the 1981 Legislative Session. Although the House Select Energy Committee was changed to a permanent standing committee, the attention of the House was focused on other pressing problems. Neither the Senate nor the Governor were inclined to push for any substantial energy legislation. Two existing laws were affected; no new laws were passed.[43]

## CONCLUSION

After the 1981 session, Florida remains without a comprehensive state energy policy. There are several statutes with laudable objectives and statements of intent, and other statutes with incentives for energy conservation and efficiency, but the state lacks clear overall direction.

Although the Governor's Energy Office is responsible for energy policy in the state, its only real function is to coordinate federal programs using federal funds. The Public Service Commission is the most important energy agency in Florida, with ample budget and authority, but its main emphasis is electrical energy. The federal government under the Reagan Administration is moving to reduce the programs under which the Governor's Energy Office has been operating, which will further reduce the

presence of that office. If Florida is to have a comprehensive, effective energy policy, such as those implemented by many other states, a decision will have to be made whether to increase the funding and authority of the Governor's Energy Office, or to broaden the scope of the Public Service Commission's jurisdiction. The alternative is to rely on the federal government to set energy policy in the state.

1. For a more detailed description of energy policy in Florida, including laws and regulations affecting extraction, processing, transport and consumption, see Energy Law in Florida, Center for Governmental Responsibility (1981) (Report for the Governor's Energy Office).

2. Governor's Address to the House of Representatives (April 3, 1973), Journal of the House of Representatives, 1st. Reg. Session, at 7.

3. Ch. 73-130, Laws of Fla.

4. Ch. 74-189, Laws of Fla.

5. 15 U.S.C. §753. The state set-aside and fuel allocation programs have been terminated under Reagan Administration regulations. Presidential Order No. 12287, 46 Fed. Reg. 20, 99 (Feb. 23, 1981).

6. Ch. 74-189, Laws of Fla.

7. Ch. 74-186, Laws of Fla.

8. Id.

9. Ch. 74-188, Laws of Fla.

10. Ch. 74-185, Laws of Fla.

11. Id.

12. 42 U.S.C. §§5901 et seq.

13. Ch. 74-342, Laws of Fla.

14. Id. This responsibility was subsequently transferred to the Department of Environmental Regulation. Ch. 78-329, Laws of Fla.

15. Ch. 74-187, Laws of Fla.

16. Ch. 72-295, Laws of Fla.

17. See L. Carter, "Florida: An Energy Policy Emerges in a Growth State," 184 Science 302 (April 19, 1974).

18. Florida Energy Committee, Energy Law in Florida at 39 (1975).

19. Ch. 75-256, Laws of Fla.

20. The Florida Solar Energy Center received a small appropriation in 1975. The Resource Recovery Council was given minimal funding to continue and was transferred to the Department of Environmental Regulation. Fla. Stat. §403.704 (Supp. 1980).

21. 42 U.S.C. §6322.

22. See generally Center for Governmental Responsibility, Energy Law in Florida (1981).

23. 42 U.S.C. §§6801 et seq.

24. Ch. 76-246, Laws of Fla.; Fla. Stat. §377.705 (1979).

25. Fla. Stat. §377.705(2) (1979).

26. Ch. 78-309, Laws of Fla. Standards became mandatory in 1980.

27. Ch. 76-69, Laws of Fla.; Fla. Stat. §380.06(2) (1979).

28. Fla. Stat. §380.06(a)(b)(6) (Supp. 1980).

29. In most DRI proceedings electrical need is routinely certified. A definition of energy added to Fla. Stat. §380.031 would be useful, and could include gasoline and natural gas consumption.

30. Ch. 77-306, Laws of Fla.

31. Fla. Stat. §163.3184(2) (1979).

32. Fla. Stat. §23.0191; Ch. 403-II (1979).

33. Fla. Stat. §288.501 (1979).

34. Fla. Stat. §380.06(4)(b) (1979).

35. Fla. Stat. §377.601(4).

36. Black's Law Dictionary 1317 (Rev. 4th Ed. 1968).

37. Ch. 78-25, Laws of Fla.; Fla. Stat. §377.601-.701 (1979).

38. Sarasota Herald Tribune, Sunday, February 26, 1978, §F-1, col. 1.

39. Ch. 79-190, Laws of Fla.

40. Ch. 80-65, Laws of Fla.; Fla. Stat. §366.82 (Supp. 1980).

41. Ch. 25-17.01 Fla. Admin. Code.

42. Ch. 80-65, Laws of Fla.

43. Chs. 81-131, 226, Laws of Fla. The Model Energy Efficiency Code provisions in the law were modified to permit the Department of Veteran and Community Affairs to change the Code by rule. Minimum standards for ceiling insulation and air conditioners were also established. The other new law extended Public Service Commission jurisdiction over the purchase of power producers and modified some procedural aspects of the Electrical Power Plan Siting Law.

BIOGRAPHICAL SKETCH OF R. DUKE WOODSON

Associate and Acting Director of the Center for Governmental Responsibility, Holland Law Center, University of Florida, Gainesville. Mr. Woodson has worked at the Center for six years since graduating from the University of Florida College of Law in 1975. He received his Master of Science in Civil Engineering in 1977 from Auburn University, where he also received his Bachelor of Civil Engineering with honors in 1972. At present, Mr. Woodson's responsibilities include budgetary and policy planning, fund-raising, and personnel supervision. He is principal investigator for energy projects and for the grant to study enforcement of court-ordered child support in Florida. He has been involved in energy policy research since 1974.

Mr. FUQUA. Thank you very much, Mr. Woodson.

Now we will have one departure from our announced agenda in order to accommodate hearings that are going on in the Capitol. We welcome the Honorable Dick Batchelor, the chairman of the House Energy Committee of the Florida House of Representatives.

Dick, we are happy to have you here and look forward to hearing your statement.

## STATEMENT OF DICK BATCHELOR, CHAIRMAN, HOUSE ENERGY COMMITTEE, FLORIDA HOUSE OF REPRESENTATIVES

Mr. BATCHELOR. Thank you very much. I appreciate the opportunity to be here with you today, Congressman Fuqua.

I testified recently before Congress on another matter, which I want to allude to later on, but it is a little bit more satisfactory to testify in my own capitol rather than having to travel to Washington. Things are in disarray up there, and I feel much safer here.

My name is Dick Batchelor. I am the chairman of the Energy Committee of the Florida House of Representatives and serve on the Southern Legislative Conference's Energy Committee.

The subject of your committee's inquiry today, "Energy Efficiency in Florida's Future," could not be more timely, as my committee is currently in the midst of a serious and complete review of this State's efforts to insure the availability of sufficient energy for our continued well-being and economic growth.

As you know, all of Florida's primary energy sources—oil, natural gas, coal, and nuclear—are imported, either from other States or other countries. Our best known resource, the Sun, is also a reliable energy source, but unfortunately accounts for less than one-tenth of 1 percent of primary energy consumption in Florida today.

Florida has virtually no control over its energy supply and appears, also, to have little or no control over its energy consumption.

The transportation sector is responsible for about 37 percent of energy consumption in Florida. This is understandable. After all, we depend a great deal on those tourists, the majority of whom continue to drive to our main attractions.

The next largest consuming sector in Florida today is the residential sector. Its share is a little over 23 percent. The commercial and industrial sectors each account for about 16 percent of end use energy consumption, with the remaining 8 percent charged to government and other end users.

Residential demand for electricity, the major source of cooling and space and water heating in Florida homes, has grown at a rate far exceeding the rate of growth in the population throughout the 1970's.

Let me illustrate. During this period, new housing starts increased at an average rate of 4 percent; summer peak demand increased at a rate of 7.4 percent; winter demand at 7.5 percent; and per capita consumption of electricity increased 27 percent.

What you have then is a clear picture of an energy economy that is as fragile and vulnerable as any you can imagine. Our largest end user is transportation—very oil dependent. The next largest is the residential sector, composed in large part of an elderly population depending on shrinking retirement incomes.

This residential sector is not very well insulated from the vagaries of supply and price, either. Florida's largest primary energy source is oil, with a 69.5 percent share, closely followed by natural gas, with just over 15 percent share.

We are frustrated and, I might add, apprehensive about what the future holds. Growth will continue in Florida, I don't think there is any doubt about it, and until we can decrease our dependence on oil in a real way with increased use of renewables and other technologies now on the cutting edge of commercialization, we must rely almost entirely on conservation.

Conservation really is nothing more than getting the most efficiency out of end use and production that is cost effective. Of course, other fossil fuels will play a larger role in the future than they currently do.

I hope that new natural gas connections will increase and that we can burn more coal in an environmentally safe way. We cannot back out of oil into coal to reduce vulnerability while destroying that which makes our State such a desirable place to live and visit. That, however, is an issue for another committee at another time.

I would like to tell you a little about three areas that the legislature in Florida has worked on in the past few years to foster development of alternative home grown energy sources and to control and reduce demand in residential end use.

The first is the Florida Model Energy Efficiency Code for Building Construction, the second is the 1980 legislation, the Florida Energy Efficiency and Conservation Act, and the third relates to our efforts to create a climate favorable to development of renewable energy alternatives.

I know that there will be others testifying today on the same issues, but I want to share with you my impressions of these programs as a policymaker and then tell you a little bit about what I think our next steps must be, with your help.

Florida ranks as the second best market in the Nation for domestic solar heaters, yet, as I pointed out earlier, solar's contribution to our energy mix is negligible. The solar resource is fantastic, if you can believe the insulation data, but its application is currently effectively limited to water heating.

Passive solar remains to see widespread use in Florida in the future because our need is not in heating, but cooling, and more particularly dehumidification. Short of instituting a personal income tax, we have given solar all the tax breaks we can.

If you want to drop the death blow on solar, however, repeal the Federal income tax credit. In Florida, this credit is responsible for almost all of solar's penetration into the marketplace.

Besides the incentives we have—sales tax, property tax—we now provide some of the best consumer protection programs in the Nation with a nationally recognized certification and standards program for solar systems and a soon-to-be-implemented statewide solar contractor licensing program.

Florida recognizes "Sun rights," prohibits discriminating local ordinances and covenants, and has directed the public service commission not to approve any rates or rate structures which discriminate against the use of solar energy systems.

In addition, we require that all new construction have plumbing designed to facilitate the future installation of solar water heating equipment, and the Energy Code encourages the use of solar in the design alternatives considered to meet the code's energy performance index standard.

We also require all our schools to install solar systems whenever economically feasible and require the same on all State-constructed facilities. It is expressed State policy to retrofit existing State structures to make them more efficient and less energy consuming as a model for future application in the private sector. Yet, we have less than 2 dozen solar hot water systems on State buildings in Florida.

Where is our commitment when it comes to acting and not just mouthing platitudes about energy conservation? I don't have the answer this morning, but this is one area where my committee will see that changes are made, hopefully, during the next legislative session.

The 1980 legislature took a giant step into the conservation business with the passage of the Florida Energy Efficiency and Conservation Act. It deals with a myriad of issues, only some of which I want to touch on today.

The law requires the PSC to set goals and approve utility plans to achieve their pro rata share of the goals in their individual service areas. The law spells out what the goals should accomplish:

One. Increase energy efficiency and cost effective use of electricity;

Two. Conserve expensive resources, such as petroleum;

Three. Reduce growth rate of electricity consumption;

Four. Reduce especially the growth rate of weather sensitive peak demands;

Five. Encourage the use of solar and other renewable energy resources; and

Six. Encourage highly efficient systems and load management controls.

The PSC set six quantified goals: Basically limiting the growth rate in kW demand and kWh consumption to a fraction of projected growth rates in number of residential customers from 1980 through 1989; reducing the use of oil as a generating fuel by 25 percent in 1989; and setting annual rates for residential, commercial and industrial audits.

Unfortunately, these audits are basically patterned after the Federal residential conservation service program, provide lots of paper, some good advice about lifestyle and no cost-low cost conservation strategies, and have become one of the major efforts of the State to penetrate the existing housing market with conservation efficiency measures.

What followup has been done indicates that few homeowners are implementing audit recommendations currently. The reasons are unclear. Lack of motivation and lack of initial capital or access to affordable financing have all been suggested.

In any event, it is clear we need more tools to impact this sector. Utility rebates are gaining favor. Loan programs appear very unpopular in Florida, although they are extremely effective in the West. Loan guarantees, which we authorized in the law, are probably not going to make any difference.

Public education and motivation are important, and it seems to me that the present onerous requirements of the RCS need to be changed by the Congress as soon as practicable so that the States and the utilities can have more flexibility in designing programs to meet their needs.

As the audits try to deal with the existing housing market, the energy code is designed to insure that today's new houses don't become the energy hogs of the 1990's that we will have to go back into and make more energy efficiency.

Very simply, the code assigns point credits and debits and multipliers to structural and mechanical elements of the building that affect energy conservation. Overall energy performance is indexed against the average energy conservation of a house built to prevailing standards in 1977.

Thus, an EPI of 100 means a house is 10 percent more energy efficient than the average 1977 house, and an EPI of 80 means the house is 20 percent more efficient than a house with an EPI of 100.

Right now you must design a house to have an EPI of 100 or less in order to be issued a permit to build. Minimum statewide data on EPI's indicates that the present average EPI is about 78.

The code currently has widespread builder support, which is rapidly disappearing as the code's proposed revisions requiring greater efficiency are discussed. We are additionally proposing in the code the establishment of minimum SEER and COP ratings for central and unit air conditioners and other HVAC systems.

So, now the code is under fire by appliance manufacturers. Both groups oppose the changes because it will allegedly cost money. Builders will have to charge more for their homes, thus further restricting the number of people able to purchase their products, and appliance manufacturers claim whole product lines or substantial parts of them will disappear from Florida stores, thus damaging current production orders.

Well, let me summarize where I think we are.

We are not making as much headway in the new housing area through the energy efficiency code because what we want to do will cost money and people don't have it. I might say as an aside, we have got testimony from building inspectors themselves that probably only about 50 percent of the buildings being built are meeting the code, so obviously we, as a policymaking body, must address some other way to increase that enforcement.

Second, we are not getting much action on the part of consumers as a result of utility efforts to show them what to do to reduce consumption, seemingly because they lack motivation or money or both to make the changes recommended by the audit.

Third, solar and other renewables still haven't gotten off the ground dramatically because people can't afford a $2,000 water heater with only a 40 percent Federal tax credit.

Four, Florida can't continue to rely upon oil for almost 70 percent of its primary energy when it has no control over price and limited ability to affect supply.

Where can we possibly go from here? I believe right down the same paths we have started. The code can work. It must be made stronger, and perhaps we should look again at service availability

fees or impact fees to insure that needed services are available in the future.

Existing housing must be penetrated, and if existing tools are too cumbersome, we will make new ones, like streamlined audits that are aggressive and sales oriented.

If consumers don't have the capital, we will look to expand capital availability through utility financing and other means.

If solar won't sell in Miami because even our own State buildings and schools don't use the Sun, then we will simply have to show them it does work with aggressive commercialization efforts, visible and workable demonstrations, continued emphasis on near-term technologies, like PCB's, and stepped up research into new generation technologies, like ocean thermal energy conversion.

Congressman Fuqua, again I would like to compliment you for being here and to allow us access to the U.S. Congress, inasmuch as a great number of policies are being negotiated now that will have a substantial effect on this State.

Now let me make two points in closing which were not in my prepared remarks, but I think are very important and have a substantial impact on not only the energy policies of this State, but the entire Nation.

First, I mentioned earlier that I had testified before another congressional committee some weeks ago regarding the energy emergency preparedness plan. The NCSL had taken a very strong position that the U.S. Congress should reinstitute some type of setaside plan or not pass any prohibitive legislation to what I would call still southern monopolies.

Thank you, Mr. Chairman.

[The prepared statement of Mr. Batchelor follows:]

TESTIMONY OF

REPRESENTATIVE DICK J. BATCHELOR
CHAIRMAN
COMMITTEE ON ENERGY
FLORIDA HOUSE OF REPRESENTATIVES

My name is Dick Batchelor and I am the chairman of the Energy Committee of the Florida House of Representatives and serve on the Energy Committee of the National Conference of State Legislatures. I am also the Florida legislative member of the Southern States Energy Board and serve on the Southern Legislative Conference's Energy Committee.

The subject of your committee's inquiry today, "Energy Efficiency in Florida's Future", could not be more timely as my committee is currently in the midst of a serious and complete review of this state's efforts to ensure the availability of sufficient energy for our continued well being and economic growth.

As you know, all of Florida's primary energy sources--oil, natural gas, coal, and nuclear--are imported, either from other states or other countries. Our most well-known resource--the sun--is also a reliable energy source, but unfortunately accounts for less than one-tenth of one percent of primary energy consumption in Florida today. Florida has virtually no control over its energy supply and appears, also, to have little or no control over its energy consumption!

The transportation sector is responsible for about 37 percent of energy consumption in Florida. This is understandable; after all, we depend a great deal on those tourists,

THE MAJORITY OF WHOM CONTINUE TO DRIVE TO OUR MANY ATTRACTIONS. THE NEXT LARGEST CONSUMING SECTOR IN FLORIDA TODAY IS THE RESIDENTIAL SECTOR; ITS SHARE IS A LITTLE OVER 23 PERCENT. THE COMMERCIAL AND INDUSTRIAL SECTORS EACH ACCOUNT FOR ABOUT 16 PERCENT OF END USE ENERGY CONSUMPTION, WITH THE REMAINING 8 PERCENT CHARGED TO GOVERNMENT AND OTHER END USERS.

RESIDENTIAL DEMAND FOR ELECTRICITY, THE MAJOR SOURCE OF COOLING AND SPACE AND WATER HEATING IN FLORIDA HOMES, HAS GROWN AT A RATE FAR EXCEEDING THE RATE OF GROWTH IN THE POPULATION THROUGHOUT THE 1970'S. LET ME ILLUSTRATE: DURING THIS PERIOD, NEW HOUSING STOCK INCREASED AT AN AVERAGE RATE OF 4 PERCENT; SUMMER PEAK DEMAND INCREASED AT A RATE OF 7.4 PERCENT; WINTER DEMAND AT 7.5 PERCENT; AND PER CAPITA CONSUMPTION OF ELECTRICITY INCREASED 27 PERCENT.

WHAT YOU HAVE THEN IS A CLEAR PICTURE OF AN ENERGY ECONOMY THAT IS AS FRAGILE AND VULNERABLE AS ANY YOU CAN IMAGINE. OUR LARGEST END USER IS TRANSPORTATION - VERY OIL DEPENDENT. THE NEXT LARGEST IS THE RESIDENTIAL SECTOR, COMPOSED IN LARGE PART OF A POPULATION DEPENDENT ON SHRINKING RETIREMENT INCOMES. THIS RESIDENTIAL SECTOR IS NOT VERY WELL INSULATED FROM THE VAGARIES OF SUPPLY AND PRICE EITHER. FLORIDA'S LARGEST PRIMARY ENERGY SOURCE IS OIL, WITH A 69.5 PERCENT SHARE, CLOSELY FOLLOWED BY NATURAL GAS WITH JUST OVER 15 PERCENT SHARE!

WE ARE FRUSTRATED AND I MIGHT ADD, APPREHENSIVE, ABOUT WHAT THE FUTURE HOLDS. GROWTH WILL CONTINUE IN FLORIDA, I DON'T THINK THERE'S ANY DOUBT OF THAT, AND UNTIL WE CAN DECREASE OUR DEPENDENCE ON OIL IN A REAL WAY WITH INCREASED USE OF RENEWABLES AND OTHER TECHNOLOGIES NOW ON THE CUTTING EDGE OF COMMERCIALIZATION, WE MUST RELY ALMOST ENTIRELY ON THE 1980'S SHIBBOLETH: "CONSERVATION". CONSERVATION REALLY IS NOTHING MORE THAN GETTING THE MOST EFFICIENCY OUT OF END USE AND PRODUCTION THAT IS COST EFFECTIVE. OF COURSE, OTHER FOSSIL FUELS WILL PLAY A LARGER ROLE IN THE FUTURE THAN THEY CURRENTLY DO. I HOPE THAT NEW NATURAL GAS CONNECTIONS WILL INCREASE AND THAT WE CAN BURN MORE COAL IN AN ENVIRONMENTALLY SAFE WAY--WE CANNOT BACK OUT OF OIL INTO COAL TO REDUCE VULNERABILITY WHILE DESTROYING THAT WHICH MAKES OUR STATE SUCH A DESIRABLE PLACE TO LIVE AND VISIT. THAT, HOWEVER, IS AN ISSUE FOR ANOTHER COMMITTEE AT ANOTHER TIME.

I WOULD LIKE TO TELL YOU A LITTLE ABOUT THREE AREAS THAT THE LEGISLATURE IN FLORIDA HAS WORKED ON IN THE PAST FEW YEARS TO FOSTER DEVELOPMENT OF ALTERNATIVE "HOMEGROWN" ENERGY SOURCES AND TO CONTROL AND REDUCE DEMAND IN RESIDENTIAL END USE. THE FIRST IS THE "FLORIDA MODEL ENERGY EFFICIENCY CODE FOR BUILDING CONSTRUCTION" (FAMILIARLY KNOWN AS THE ENERGY CODE), THE SECOND IS THE 1980 LEGISLATION ENTITLED THE "FLORIDA ENERGY EFFICIENCY AND CONSERVATION ACT", AND THE THIRD RELATES TO OUR EFFORTS TO CREATE A CLIMATE FAVORABLE TO DEVELOPMENT OF RENEWABLE ENERGY ALTERNATIVES.

I KNOW THAT THERE WILL BE OTHERS TESTIFYING BEFORE YOU THIS MORNING ON SOME OF THESE SAME ISSUES, BUT I WANT TO SHARE WITH YOU MY IMPRESSIONS OF THESE PROGRAMS AS A POLICY MAKER AND THEN TELL YOU A LITTLE BIT ABOUT WHAT I THINK OUR NEXT STEPS MUST BE - WITH YOUR HELP.

FLORIDA RANKS AS THE SECOND BEST MARKET IN THE NATION FOR DOMESTIC SOLAR HEATERS, YET AS I POINTED OUT EARLIER, SOLAR'S CONTRIBUTION IN OUR ENERGY MIX IS NEGLIGIBLE. THE SOLAR RESOURCE IS FANTASTIC, IF YOU CAN BELIEVE THE INSOLATION DATA, BUT ITS APPLICATION IS CURRENTLY EFFECTIVELY LIMITED TO WATER HEATING. PASSIVE SOLAR REMAINS TO SEE WIDESPREAD USE IN FLORIDA IN THE FUTURE BECAUSE OUR NEED IS NOT HEATING, BUT COOLING AND MORE PARTICULARLY DEHUMIDIFICATION. SHORT OF INSTITUTING A PERSONAL INCOME TAX, WE'VE GIVEN SOLAR ALL THE TAX BREAKS WE CAN. IF YOU WANT TO DROP THE DEATH BLOW ON SOLAR, HOWEVER, REPEAL THE FEDERAL INCOME TAX CREDIT. IN FLORIDA THIS CREDIT IS RESPONSIBLE FOR ALMOST ALL OF SOLAR'S PENETRATION IN THE MARKETPLACE.

BESIDES THE INCENTIVES WE HAVE (SALES TAX, PROPERTY TAX), WE NOW PROVIDE SOME OF THE BEST CONSUMER PROTECTION PROGRAMS IN THE NATION WITH A NATIONALLY RECOGNIZED CERTIFICATION AND STANDARDS PROGRAM FOR SOLAR SYSTEMS AND A SOON-TO-BE-IMPLEMENTED STATEWIDE SOLAR CONTRACTOR LICENSING PROGRAM. FLORIDA RECOGNIZES "SUN RIGHTS", PROHIBITS DISCRIMINATING LOCAL ORDINANCES

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AND COVENANTS, AND HAS DIRECTED THE PUBLIC SERVICE COMMISSION NOT TO APPROVE ANY RATES OR RATE STRUCTURES WHICH DISCRIMINATE AGAINST THE USE OF SOLAR ENERGY SYSTEMS.

IN ADDITION, WE REQUIRE THAT ALL NEW CONSTRUCTION HAVE PLUMBING DESIGNED TO FACILITATE THE FUTURE INSTALLATION OF SOLAR WATER HEATING EQUIPMENT AND THE ENERGY CODE ENCOURAGES THE USE OF SOLAR IN THE DESIGN ALTERNATIVES CONSIDERED TO MEET THE CODE'S ENERGY PERFORMANCE INDEX STANDARD. WE ALSO REQUIRE ALL OUR SCHOOLS TO INSTALL SOLAR SYSTEMS WHENEVER ECONOMICALLY FEASIBLE AND REQUIRE THE SAME ON ALL STATE CONSTRUCTED FACILITIES. IT IS EXPRESSED STATE POLICY TO RETROFIT EXISTING STATE STRUCTURES TO MAKE THEM MORE EFFICIENT AND LESS ENERGY CONSUMING, AS A MODEL FOR FUTURE APPLICATION IN THE PRIVATE SECTOR. YET, WE HAVE LESS THAN TWO DOZEN SOLAR HOT WATER SYSTEMS ON STATE BUILDINGS IN FLORIDA!

WHERE IS OUR COMMITMENT WHEN IT COMES TO ACTING, NOT JUST MOUTHING PLATITUDES? I DON'T HAVE THE ANSWER THIS MORNING, BUT THIS IS ONE AREA WHERE MY COMMITTEE WILL SEE THAT CHANGES ARE MADE.

THE 1980 LEGISLATURE TOOK A GIANT LEAP INTO THE CONSERVATION BUSINESS WITH PASSAGE OF THE "FLORIDA ENERGY EFFICIENCY AND CONSERVATION ACT". IT DEALS WITH A MYRIAD OF ISSUES, ONLY SOME OF WHICH I WANT TO TOUCH ON TODAY.

THE LAW REQUIRES THE PUBLIC SERVICE COMMISSION TO SET GOALS AND APPROVE UTILITY PLANS TO ACHIEVE THEIR PRO-RATA SHARE OF THE GOALS IN THEIR INDIVIDUAL SERVICE AREAS. THE LAW SPELLS OUT WHAT THE GOALS SHOULD ACCOMPLISH:

1. INCREASE ENERGY EFFICIENCY AND COST-EFFECTIVE USE OF ELECTRICITY,

2. CONSERVE EXPENSIVE RESOURCES, SUCH AS PETROLEUM,

3. REDUCE GROWTH RATE OF ELECTRICITY CONSUMPTION,

4. REDUCE ESPECIALLY THE GROWTH RATE OF WEATHER-SENSITIVE PEAK DEMAND,

5. ENCOURAGE THE USE OF SOLAR AND OTHER RENEWABLE ENERGY RESOURCES, AND

6. ENCOURAGE HIGHLY EFFICIENT SYSTEMS AND LOAD MANAGEMENT CONTROLS

THE PSC SET SIX QUANTIFIED GOALS: BASICALLY LIMITING THE GROWTH RATE IN KW DEMAND AND KWH CONSUMPTION TO A FRACTION OF PROJECTED GROWTH RATES IN NUMBER OF RESIDENTIAL CUSTOMERS FOR 1980-89; REDUCING THE USE OF OIL AS A GENERATING FUEL BY 25 PERCENT BY 1989; AND SETTING ANNUAL RATES FOR RESIDENTIAL, COMMERCIAL, AND INDUSTRIAL AUDITS.

UNFORTUNATELY, THESE AUDITS ARE BASICALLY PATTERNED AFTER THE FEDERAL RESIDENTIAL CONSERVATION SERVICE PROGRAM, PROVIDE LOTS OF PAPER, SOME GOOD ADVICE ABOUT LIFE STYLE AND NO-COST/LOW-COST CONSERVATION STRATEGIES, AND HAVE BECOME ONE OF THE MAJOR EFFORTS OF THE STATE TO PENETRATE THE EXISTING HOUSING MARKET WITH CONSERVATION/EFFICIENCY MEASURES. WHAT FOLLOW-UP HAS BEEN DONE INDICATES THAT FEW HOMEOWNERS ARE IMPLEMENTING AUDIT RECOMMENDATIONS CURRENTLY. THE REASONS ARE UNCLEAR: LACK OF MOTIVATION AND LACK OF INITIAL CAPITAL OR ACCESS TO AFFORDABLE FINANCING HAVE ALL BEEN SUGGESTED.

IN ANY EVENT, IT IS CLEAR WE NEED MORE TOOLS TO IMPACT THIS SECTOR; UTILITY REBATES ARE GAINING FAVOR; LOAN PROGRAMS APPEAR VERY UNPOPULAR IN FLORIDA, ALTHOUGH THEY ARE EXTREMELY EFFECTIVE IN THE WEST; LOAN GUARANTEES, WHICH WE AUTHORIZED IN THE LAW, ARE PROBABLY NOT GOING TO MAKE ANY DIFFERENCE. PUBLIC EDUCATION AND MOTIVATION ARE IMPORTANT AND IT SEEMS TO ME THAT THE PRESENT ONEROUS REQUIREMENTS OF THE RCS NEED TO BE CHANGED BY THE CONGRESS AS SOON AS PRACTICABLE SO THAT THE STATES AND THE UTILITIES CAN HAVE MORE FLEXIBILITY IN DESIGNING PROGRAMS TO MEET THEIR NEEDS.

AS THE AUDITS TRY TO DEAL WITH THE EXISTING HOUSING MARKET, THE ENERGY CODE IS DESIGNED TO INSURE THAT TODAY'S NEW HOUSES DON'T BECOME THE ENERGY HOGS OF THE 1990'S THAT WE'LL HAVE TO GO BACK INTO AND MAKE MORE ENERGY EFFICIENT.

VERY SIMPLY, THE CODE ASSIGNS POINT CREDITS AND DEBITS AND MULTIPLIERS TO STRUCTURAL AND MECHANICAL ELEMENTS OF THE BUILDING THAT AFFECT ENERGY CONSUMPTION. OVERALL ENERGY PERFORMANCE IS INDEXED AGAINST THE AVERAGE ENERGY CONSUMPTION OF A HOUSE BUILT TO PREVAILING STANDARDS IN 1977.

THUS AN ENERGY PERFORMANCE INDEX (EPI) OF 100 MEANS A HOUSE IS 10 PERCENT MORE ENERGY EFFICIENT THAN THE AVERAGE 1977 HOUSE AND AN EPI OF 80 MEANS THE HOUSE IS 20 PERCENT MORE EFFICIENT THAN A HOUSE WITH AN EPI OF 100. RIGHT NOW YOU MUST DESIGN A HOUSE TO HAVE AN EPI OF 100 OR LESS IN ORDER TO BE ISSUED A PERMIT TO BUILD. MINIMUM STATEWIDE DATA ON EPI'S INDICATES THAT THE PRESENT AVERAGE EPI IS ABOUT 78. THE CODE CURRENTLY HAS WIDESPREAD BUILDER SUPPORT WHICH IS RAPIDLY DISAPPEARING AS THE CODE'S PROPOSED REVISIONS REQUIRING GREATER EFFICIENCY ARE DISCUSSED. WE ARE ADDITIONALLY PROPOSING IN THE CODE THE ESTABLISHMENT OF MINIMUM SEER AND COP RATINGS FOR CENTRAL AND UNIT AIRCONDITIONERS AND OTHER HVAC SYSTEMS. SO NOW THE CODE IS UNDER FIRE BY APPLICANCE MANUFACTURES. BOTH GROUPS OPPOSE THE CHANGES BECAUSE IT WILL COST MONEY: BUILDERS WILL HAVE TO CHARGE MORE FOR THEIR HOMES THUS FURTHER RESTRICTING THE NUMBER OF PEOPLE ABLE TO PURCHASE THEIR PRODUCTS AND APPLICANCE MANUFACTURES CLAIM WHOLE PRODUCT LINES OR SUBSTANTIAL PARTS OF THEM WILL DISAPPEAR FROM FLORIDA STORES THUS DAMAGING CURRENT PRODUCTION ORDERS.

WELL, LET ME SUMMARIZE WHERE I THINK WE ARE:

1. WE'RE NOT MAKING MUCH HEAD WAY IN THE NEW HOUSING AREA THROUGH THE ENERGY CODE BECAUSE WHAT WE WANT TO DO WILL COST MONEY AND PEOPLE DON'T HAVE IT.

2. WE'RE NOT GETTING MUCH ACTION ON THE PART OF CONSUMERS AS A RESULT OF UTILITY EFFORTS TO SHOW THEM WHAT TO DO TO REDUCE CONSUMPTION, SEEMINGLY BECAUSE THEY LACK MOTIVATION OR MONEY OR BOTH.

3. SOLAR AND OTHER RENEWABLES STILL HAVEN'T GOTTEN OFF THE GROUND DRAMATICALLY BECAUSE PEOPLE CAN'T AFFORD $2,000 WATER HEATERS WITH ONLY A 40 PERCENT FEDERAL TAX CREDIT (MAYBE)

4. FLORIDA CAN'T CONTINUE TO RELY UPON OIL FOR ALMOST 70 PERCENT OF ITS PRIMARY ENERGY WHEN IT HAS NO CONTROL OF PRICE AND LIMITED ABILITY TO AFFECT SUPPLY.

WHERE CAN WE POSSIBLY GO FROM HERE? I BELIEVE RIGHT DOWN THE SAME PATHS WE'VE STARTED: THE CODE CAN WORK, IT MUST BE MADE STRONGER AND PERHAPS WE SHOULD LOOK AGAIN AT SERVICE AVAILABILITY FEES OR IMPACT FEES TO INSURE THAT NEEDED SERVICES ARE AVAILABLE. EXISTING HOUSING MUST BE PENETRATED, AND IF EXISTING TOOLS ARE TOO CUMBERSOME WE'LL MAKE NEW ONES LIKE STREAMLINED AUDITS THAT ARE AGGRESSIVE AND "SALES" ORIENTED. IF CONSUMERS DON'T HAVE THE CAPITAL, WE'LL LOOK TO EXPAND CAPITAL AVAILABILITY THROUGH UTILITY FINANCING AND OTHER MEANS. IF SOLAR WON'T SELL IN MIAMI BECAUSE EVEN OUR OWN STATE BUILDINGS AND SCHOOLS DON'T USE THE SUN, THEN WE'LL SIMPLY HAVE TO SHOW THEM IT DOES WORK WITH AGGRESSIVE COMMERCIALIZATION EFFORTS, VISIBLE AND WORKABLE DEMONSTRATIONS, CONTINUED EMPHASIS ON NEAR-TERM TECHNOLOGIES LIKE PHOTOVOLTAICS, AND STEPPED RESEARCH INTO NEXT GENERATION TECHNOLOGIES LIKE OCEAN THERMAL ENERGY CONVERSION.

CONGRESSMAN FUQUA, I WANT TO COMMEND YOU FOR PURSUING THIS IMPORTANT ISSUE. WITHOUT INCREASED AWARENESS AND PUBLIC DIALOGUE IT WILL BE EVEN MORE DIFFICULT TO PROGRESS FURTHER IN THIS AREA. WITHOUT INCREASED CONSERVATION EFFORTS TODAY, THERE MAY BE TOO LITTLE LEFT TOMORROW TO WORRY ABOUT.

Mr. FUQUA. Thank you very much, Representative Batchelor.

I just have one overall statement. Your comments, Representative Batchelor and Mr. Woodson, talk about what has happened in energy policy over the years. I think the Federal support for energy has gone up and down in direct correlation to the gas lines.

I recall in 1973 and 1974, during the embargo, there was a great mad rush to do something about energy. When that was over the gas lines subsided and we went back to business as usual.

Then in 1978, when the gas lines started reappearing, people were demanding, "Why haven't you done something?" We started moving and I think made significant progress in further development of alternative sources of energy.

Now we have a glut on the market, and it seems to be in vogue today to eliminate all energy research in the field of fossil, solar and conservation—the very things we are talking about today.

I wonder where we will be if there should be an interruption in our oil supply from OPEC. I think we have made some significant progress in the conservation that the State has done but we still have a lot left to do. I was going to ask: Does this new code apply to old homes or only to new homes?

Mr. HASLAM. Only to new construction and major renovations——

Mr. FUQUA. Major renovations.

Mr. HASLAM [continuing]. Which exceed 30 percent of the value of structure.

Mr. FUQUA. So it applies to major renovations, but not to existing older homes——

Mr. HARVEY. Major renovation to an existing older home, if it exceeds more than 30 percent of the assessed value of the structure, would have to meet the energy code, yes, sir.

Mr. FUQUA. Mr. Harvey you mentioned in your statement also that many of the Federal programs are administered by the Governor's energy office for the State. Those programs are in a different committee, I might point out. The Energy and Commerce Committee deals with those administrative programs.

It is a fine line that divides our jurisdictions. They administer the support of the State energy offices and so forth, but many of the cooperative programs that you outlined in your statement are the responsibility of the Science Committee. I am going to ask Representative Batchelor also to comment on it—is there any possibility that the State will pick up funding of many of those projects that will be eliminated?

Mr. HARVEY. As the advocate on the please fund it side of the issue, I would hope the programs that the Federal Government has provided the State through its funding, that both the executive branch and the legislative branch would take a careful and close look at these programs and try to ascertain which ones based on cost benefit and life cycle costing are doing us the most good, both in the near term and the longer term, and then continue to fund those programs.

Mr. FUQUA. Representative Batchelor, what is the attitude of the legislature?

Mr. BATCHELOR. I think the attitude of the legislature would be that funding for these programs would be a lower priority, and if

we look at our sources for human resources, 50 percent of Federal dollars, education is 24.5 percent, we are suffering major cutbacks in those areas.

I sit on a committee that funds human resources, and if the case boils down to whether or not I find dollars to reinstate prenatal care for an unborn child or whether or not I fund the conservation enforcement, I would have to tell you I would probably vote for prenatal care for the child.

However, let me add in closing, that obviously the members of the committee are very, very interested in going forth with an energy office. I think data collection is of the utmost importance, and I don't think we can do any significant energy planning without it.

Second, I think other conservation efforts will be of a priority, and I think there definitely is a very major role in the area of energy. We are dependent on imported energy sources. It is a high priority. But when it gets down, as you well know, to the cutting, in total honesty it would be a very, very difficult battle for me, these programs that survive.

Mr. FUQUA. One of your statements concerned standby emergency authority in case of an oil cutoff.

I, too, share your view that we should either reenact that or give the States the authority to go ahead and enact their own plans. I remember vividly 1973 and 1974, when it seemed as if all the other responsibilities of our office shutdown while we were trying to make sure that our emergency vehicles and other people with priorities had some type of petroleum or allocation so that they could operate in some fashion.

I remember in one of the larger counties in my district that the entire sheriff's department was shutdown for almost 24 hours because they couldn't get any fuel. I do think that we need to enact something to provide stand-by authority.

Mr. BATCHELOR. Mr. Chairman, the point I made—several points at the other congressional hearing—was that we had been told by Secretary Edwards we should rely on the free marketplace. Of course, if anyone believes that energy is in the free marketplace, he hasn't got out of economics I yet.

Second, my position was that if we are going to have some type of energy plan, energy preparedness plan in the light of the turmoil that exists around the world, if we are going to rely on the major oil companies, then maybe Congress should at least invite the oil companies to come forth with their plan on how they would respond in this country in case of another interruption period.

If we are going to rely on them, it would be less precipitous at least for them to come forward and tell us what they are going to do for us, if they are going to do it for us.

Mr. FUQUA. Mr. Fish?

Mr. FISH. Thank you, Mr. Chairman.

Mr. Haslam, you told us the Florida Model Energy Efficiency Code requires certain conservation factors to be considered in new construction and in major renovation construction.

Then Representative Batchelor tells us, however, that the audits, which we are relying on for the balance of the existing structures, very simply have not been effective.

So, where do we go from there? What is being considered? Grants for retrofitting? Is the State empowered to tie inducement to mortgage financing, either through availability or cost?

I just wondered what other ideas are being considered either in the legislature or the Governor's committee to try to get a more active retrofitting program.

Mr. BATCHELOR. If I could respond maybe two ways. We have the Florida Housing Financing Authority which has just become operative, and we are looking at what has probably become an avenue that has minimal opportunities; that is, to make some of the moneys available for retrofitting.

Second, I think we can be much more aggressive in inducing the utility companies to have more aggressive conservation programs. I think we probably have to go to some type of independent forecasting to rely on independent utility companies to present you with a plan to meet self-prescribed conservation goals with in-house data, and it becomes hard to determine when that data are applicable.

The final point would be, I think, the justification for something missing here; that is, we know that the more power is consumed, the sooner we reach the point where we have to build new plants.

You don't build any new plants for over 425 megawatts coal power for under one-half billion dollars. For ratepayers to amortize a half billion dollar investment under the CWIP, built on the rate base, it gets to be very costly.

So, I think, in a nutshell, we can look at the housing financing authority to see if we can change the statute to allow some of those moneys to be made available; second, go with the mandatory loan programs through the utility companies, which the other States have used very successfully.

Mr. FUQUA. Thank you.

Mr. FISH. Mr. Harvey, I heard Mr. Woodson's testimony first, testimony highly critical of the State's primary reliance on Federal programs over the last several years. Now you in your testimony in several places stressed the importance of Federal funding and a wide range of conservation activities that your office undertakes.

So, it doesn't seem to me there is that much disagreement between the two of you.

You did mention favorable legislation that would establish energy block grants for conservation activities. Such a bill has recently been introduced in the Senate. It would actually repeal existing Federal conservation in categorical grant programs. It would require between 35 to 50 percent of cost sharing from the States.

Could I ask you to elaborate on your endorsement of that program and how it is going to affect this wide range of initiatives that the State is undertaking?

Mr. HARVEY. Yes, sir. Governor Graham last year served as the chairman of the National Governor's Association Committee on Energy and Conservation and through our involvement with that organization and others we are highly supportive of an energy block grant to the State with substantially fewer guidelines than are contained in the current categorical programs.

This would allow us to better address the needs of Florida and its specific energy needs as opposed to across-the-board sort of shop-

ping lists for programs that have encumbered the State within the historic framework of Federal energy programs.

The reduced level of funding and the requirement for match to us is not seen as a deleterious blow, necessarily.

Mr. FISH. But in your testimony, about the Bartow project to convert animal waste to methane, municipal waste to methane, or eucalyptus farming, would you envision these things folded into the block grants or are these the type of programs that the administration should expect the marketplace to pick up?

Mr. HARVEY. There was—let me back up. Let's recognize that the block grant doesn't include R. & D., that is still under the authority of this committee, as I understand the status of the block grant.

However, we do vigorously recognize the need for research and development, particularly in high risk R. & D. that the Federal Government can take the best lead in.

Mr. FISH. So the block grant money goes right to the States whereas the projects enumerated right here on page 10 are largely not State funded. Is that correct?

Mr. HARVEY. Yes, sir. We in our testimony did recommend a continuance of Federal leadership initiative in the R. & D. role so as to prevent——

Mr. FISH. Mr. Harvey, in the testimony that came before our committee last spring expressing the philosophy of the administration on the proper role of the Federal Government in all this, it seemed to me that all these types of things that are not state initiatives today—Disneyworld, Bartow, and so forth—are what they would describe as areas which, if they are really needed and of value, the private sector will pick up.

What is your comment on that?

Mr. HARVEY. I don't have any empirical evidence that is based on survey work of potential technology investors engaged in general commerce who are either (1) engaging in R. & D. or (2) the implementation of the state of the art result of R. & D.

Currently in Florida, however, I think, just as an observer within the State, I would find that not only does the State have problems financing all of the State's needs, but so do many individuals in the private sector, including our business communities.

It is one of those push-pull kinds of things where if there is enough R. & D. on the street that you can feel, touch, and see that works, that is the best word-of-mouth advertising we know of.

Mr. FISH. Finally, Mr. Woodson, you mentioned in your testimony that California, Oregon, and Wisconsin have replaced Florida as leaders. Could you elaborate on that briefly, please?

Mr. WOODSON. It is my feeling from reading the national periodicals that those three are among the leaders. There are probably half-a-dozen more that have good energy programs.

I think I picked those three States because they have put a lot of their own money into their programs, developed innovative programs that other States have looked to, and declared their independence from the Federal Government, which is heartening to me.

I grew up in Alabama, and I used to hear a Governor—you know his name: Wallace—talk about State's rights. I think that sunk into me at a very early age, the importance of States using their

own power, their own initiative, their own funds to do what is the best thing they can do for their citizens.

Governor Wallace's problem, I think, was after espousing State's rights, he refused to take the next step, which was to exercise State responsibility and implement programs.

I think the same thing can be seen in Florida and in other States today where they talk on the one hand about State power but when it comes to implementing their own programs, they quit talking and wait on the Federal Government to act.

Mr. FUQUA. Representative Batchelor, do you want to respond?

Mr. BATCHELOR. If I could. You know, I don't get too excited about farming eucalyptus and even wood burning until some massive technology is available, but I do get excited about things like solar, which if we can ever pierce the threshold of PB, you know, synthetic silicon, we are going to have something that has massive application nationwide and will respond to an energy policy on a very, very large scale.

I think ocean thermal is a very, very real possibility and, of course, within the State of Florida we are very excited about those possibilities.

It is interesting to me to hear people talk about the State's responsibility to pick up these projects. I would indeed submit to you that an energy policy really is what this Nation relies upon.

The energy policy is so intrinsically related to foreign policy, economic policy and everything else. I don't think it is going to be something that 50 States can adopt on their own.

The final point is that I am always mesmerized—actually, I am not that mesmerized, but when I hear some of our leaders nationally telling us how big a problem our energy policy is at the local level without the incentives, well, I only have to refer you back to the tax incentives enjoyed by every other energy industry.

Oil has enjoyed about $124 billion in tax credits in the last few years. Coal has enjoyed over $30 billion in tax credits in the last few years. Hydroelectric has enjoyed $17 billion in tax credits in the last few years.

I might add a great deal of Federal tax dollars subsidizing the research in coal, hydroelectric and oil. I also suspect you could go back as recent as the 1950's, when Mr. Rockefeller chaired Standard Oil. Had it not been for their exemption from the antitrust law, they wouldn't be as wealthy as they are today.

I think we kind of have to put these things on balance when you talk about what the energy policy of this nation is going to be. We are talking about providing energy to 9.7 million people in this State. I think we need to be reminded that had it not been for a great number of billions of dollars of tax credits and Federal funding for research and development, they would never be where they are today.

Mr. FISH. This I know is a matter of concern to you, Mr. Chairman, but I mentioned OTEC. The OTEC legislation came out of this committee. The OTEC pilot project would be coming up. I am assuming that you were very much in favor of this, but in the event we are not able to fund the OTEC project, would the technology go forward?

Mr. BATCHELOR. With the venture capital necessary for something in the magnitude of ocean thermal—I mean beyond a 1 megawatt plant in Hawaii—I am talking about a 40-million-watt plant and several million dollars.

I don't know whether the private sector is going to venture into ocean thermal any more expeditiously than they would in synthetic fuels. I don't know whether any of the major oil companies would venture into synthetic fuels without the Federal tax dollars. I don't know whether a private venture would.

Mr. FUQUA. Until its scaled up technology is proved feasible?

Mr. BATCHELOR. Yes, sir, precisely. Again, the point I am trying to make, on the one hand, you are going to be asking, should we provide those dollars as incentives? Well, we provided the same dollars as incentives for coal and hydro and oil, and we are talking about an energy policy that you cannot separate from the economic future of this Nation.

Mr. FISH. What would be the nuclear——

Mr. BATCHELOR. Nuclear, I think has been about $42 billion since 1945, and this year I saw in the budget where Secretary Edwards wants to cut everything and doesn't want to provide any subsidy. We will all do this on our own, except he left out nuclear efficient fusion, which is about $1.2 million in his budget proposal, so obviously he has a commitment there.

I might add fusion is probably 25 to 30 years down the road, but they are getting the billions of dollars today. I think some more of these projects, such as buildings delving into solar, including water solar, has many more policies than what he is proposing.

Mr. FUQUA. Thank you.

Mr. McGrath?

Mr. MCGRATH. Thank you, Mr. Chairman.

I was interested in the testimony of you four gentlemen. Last night I got into the Hilton Hotel really late and saw all of the switches for lights that the Governor's Energy Committee—I couldn't turn any of them on. I was wondering whether that was part of it.

Mr. FUQUA. Passive system.

Mr. MCGRATH. Passive system?

I was wondering whether Florida has a bill or law that has been kicked around in New York, where I was a member of the legislature for a number of years, on sales and resales of homes as a tool to promote the retrofitting of homes, and that would simply require that the seller provide the cost of heating and utilities to the buyer. I am wondering whether they have that.

Mr. BATCHELOR. There is a proposed piece of legislation before the committee which was left over from last year which would basically be a full disclosure requiring at point of sale or resale of a home that you disclose some energy consumption records with the philosophy that if you are going to purchase a home that costs *x* amount of thousands of dollars, it would be just as appropriate to know what the energy consumption patterns of that home has been in recent years.

So, there is proposed legislation, but I would call it more of an energy disclosure, energy consumption disclosure.

Mr. McGRATH. I am wondering along that line whether or not there is some sort of ratio of this EPI you are talking about, this index so that the resale value of homes can be included—is there any empirical data on that?

Mr. BATCHELOR. At the present time we don't have a method for evaluating homes in terms of the EPI. We have a proposal in further advancement of the code to do a study, to develop an EPI method that is applicable to the existing type home.

It has been considered by a few individuals that once that method was developed, that the EPI might then be a point of disclosure to new consumers when the house is resold, but this is all at the talking stage at this stage of the game.

Mr. McGRATH. In the area of the energy audit, I imagine this energy audit is conducted by the utility companies?

Mr. BATCHELOR. Yes.

Mr. McGRATH. Does your utility company provide then a listing of what needs to be done in the home?

Mr. BATCHELOR. Yes, it does.

Mr. McGRATH. Does the utility then provide the loan to the homeowner to amortize the costs over the life of the home? We do that in New York, so I just wondered.

Mr. BATCHELOR. Not currently. I think there may be one or two utility companies that are contemplating some type of loan program.

Mr. McGRATH. I am wondering whether or not, Representative Batchelor, your comments regarding the lack of use of solar in a State that certainly would have great application for it—I am wondering whether or not the cost of solar energy versus the cost of oil is the problem. Would it not be even cheaper to use oil now than it would be to convert to solar?

Mr. BATCHELOR. No, not at all. I think the case is that once someone makes a decision to purchase, we are looking at probably the average cost of the unit being $2,000. That is commercial, and that is talking about solar for heating water only.

Right now, if you go out and borrow $2,000, I would imagine you would be paying 20 percent plus on that type of consumer-financed loan.

Second, in total honesty, we have a very fine solar center here that has also been certifying the products. That has been a great help to us, so as to keep poorer products off the market, but again, quite frankly, during the embryonic stages of trying to install solar devices, we have had some real problems because the plumber does some work, the electricion does some work, the sheet metal worker does some more, and there is never real coordination.

Hopefully, we have moved toward resolving that problem with a new license that would be issued through our construction board where we finally have gotten all the industries together and there will be this new person who has been trained in all those areas.

In summary to your question, one, it has been the cost of getting a $2,000 investment, and one that is really worth those monthly payments and 20-percent interest; second, we are just now overcoming the difficulties we have had with the initial installation at a commercial level.

Mr. McGRATH. If you ever traveled to Israel to or even San Diego in southern California, you will find that it is a requirement on all new construction that on the home, on the roof, must be a solar collector, solar heating system.

I am wondering whether or not, because of the geography of this State, that type of home would be something that you would look favorably upon.

Mr. BATCHELOR. Well, maybe I should turn around and see if the homebuilders are still in the room. I think, you know, the experience of San Diego County was they never could offer enough tax incentives to get people to do it. Even when in fact there would be local and county and Federal tax credit, there was almost 100-percent tax credit given, but they did not do it. Finally, they required all their homes to have solar hot water heating.

I think in the long run it would be a massive savings to the consumer, and I think in the long run it would be reflected in fewer billions of dollars we would have to spend for venture capital to go to powerplants in this State.

I think it is a policy worth looking at. I support the policy, but that might have as much impact as two postcards from Bluntstown, which is not too far from here.

Mr. McGRATH. I understand the strings of those types of bills in the legislative process.

Just as a philosophical question, OTEC would have absolutely no application in my district. I live in New York in a cold climate. Solar would have very little use because of the heights of the buildings now.

Any new building—you would have to destroy some old buildings in order to get the southern exposure. Certainly, geothermal isn't anywhere near Long Island and has absolutely no application to my State.

I am wondering why the Federal Government should have to finance things that do not have nationwide application.

Mr. BATCHELOR. Initially, given the type of energy resources that you enjoy, they are being subsidized by the Federal Government, particularly when you get to the Northeast and some areas north. Sixty percent of their power is generated by nuclear, and that has been substantially subsidized.

I would say this, that the less dependent Florida becomes on imported oil through ocean thermal or new nuclear powerplants, the better. If we go to a very aggressive solar energy policy, the less dependent we become on imported oil.

Obviously there is in the marketplace the availability to the Northeast and Midwest. There are other sources of energy which you need that become more available. So, I think there are some intricacies to the marketplace that would reflect positively in your State.

It is essentially a national policy, and any segment of this country where we can offer energy policies that make us less dependent on imported fuels is certainly a positive stroke for all of us.

Mr. McGRATH. I have no argument with that. All I am saying is: Should it be the Federal Government that finances those regional type energy opportunities?

You alluded, in your testimony, I believe, to the application of energy efficient appliances in either new or old construction and vis-a-vis the problem that it creates with making your State sort of an island among the rest of the States in a country where perhaps the standards which you impose would really up the cost of that particular appliance to just the people in this State.

I am wondering whether or not a lot of what we are talking about today has a similar application.

Mr. BATCHELOR. Speaking specifically to the——

Mr. MCGRATH. Talking specifically about appliances. We are talking about solar here. We are talking about some other types of energy efficiencies in other areas, and it seems to me that for the same reasons that it is very difficult to change homebuilder's habits, it is difficult to introduce energy efficient appliances.

I wonder if you would agree with that?

Mr. BATCHELOR. I am not sure really that I understand the question.

Mr. MCGRATH. I am making a statement, and I am asking you to agree.

Mr. BATCHELOR. OK.

Mr. MCGRATH. Just one last statement, if I may, Mr. Chairman.

That is, everybody here sort of condoned the set—aside program. During the 1979 shortfall, an investigative study that was initiated by the local newspaper in New York blamed the set—aside program for the gas lines that we had, that we would have been much better off having investigated the Energy Department in Washington, having taken a look at the State energy office in New York and whatever, and the applications by the State energy director of the set—aside in various areas.

If they had left it alone, we would have been better off because while certainly there would have been some sort of a shortfall in every area, we would not have had the chaotic instances that we found around the State.

I just leave that for your information. Thank you very much, Mr. Chairman.

Mr. FUQUA. Thank you, Mr. McGrath. I want to thank all of you for your testimony this morning. We appreciate your being with us. Thank you very much.

Mr. FUQUA. We still have a number of witnesses, and we will try to go to the second panel, the utility programs.

Joe Cresse, who is chairman of the Florida Public Service Commission; John D. Shearer, director of marketing and load management of Gulf Power Corp.; and A. K. Sharma, systems planning engineer for the city of Tallahassee.

If you want to summarize your statements, we will make them part of the record, and if you want to summarize, that would certainly be permissible.

Joe, we are happy to have you here this morning and hear from you at this time.

**STATEMENTS OF JOE CRESSE, CHAIRMAN, FLORIDA PUBLIC SERVICE COMMISSION; JOHN D. SHEARER, DIRECTOR, MARKETING AND LOAD MANAGEMENT, GULF POWER CORP.; AND A. K. SHARMA, SYSTEMS PLANNING ENGINEER, CITY OF TALLAHASSEE**

Mr. CRESSE. Thank you, Mr. Chairman.

I know the committee can read the prefiled statement a whole lot quicker than I can read it to you, so I will just summarize what we have done and where we are and so forth.

Most of the previous speakers have talked about the 1980 legislature and its enactment of the Florida Energy Efficiency and Conservation Act, which we refer to as FEECA. The bill was passed in 1980, and they gave us a 6-month timetable in which to implement it.

There is a unique approach in that bill, in my opinion, and it is simply that what it does is authorize the Public Service Commission and mandates the Public Service Commission to establish cost effective conservation goals. It places the responsibility for implementing those goals and achieving those goals on the 56 electric utility companies which operate in the State of Florida.

In the fall of 1980, we established those goals, and the utilities after the establishment of those goals developed programs.

As an aside, as has been mentioned to you previously, the goals essentially reduced the growth in peak demand to 72.25 percent of the growth and number of customers or population, whereas historically the growth in peak demand has been growing twice as fast as the growth in the number of customers or population.

We succeeded at the Public Service Commission in making everybody mad in the establishment of our goals, for the utilities thought they were too stringent, the conservationists thought they were not stringent enough. The commissioners were satisfied. However, we agreed to review those goals, and we will in 1982.

A unique portion of that law, and I think the essential portion of that law, is that it provided the Public Service Commission could pass through and include in rates the cost efforts of the utilities in implementing the programs which the commission was required under the law to approve.

Upon the submission of programs initially, only 1 of the 56 programs was approved.

We established three simple criteria which said: Will the programs accomplish the goals? Are they cost effective? and, Can we monitor their implementation? If the answer to all three of those questions was yes, we approved the program. If you answered any of them no, the program was not approved.

Subsequently, however, all of them have been approved and the major utilities have all of the typical kinds of conservation programs, which I think are outlined in the details of my comments.

It is interesting, however, that if the goals which we established by 1989 are in fact implemented, it will reduce the construction of the capacity needs of the Florida electric generating plants by 6,917 megawatts, which is 6,917,000 kilowatts at a construction savings of $8.5 billion.

Florida is unique in that we are a growing State. We don't have some of the surplus capacity problems that some of the Northeastern States have and some of the Far Western States have.

We recognize that conservation would delay the construction of new plants, but if in fact Florida continues to grow, we will still have to grow to meet the needs of the population and demands of the electric utilities in this State.

As monopolies, they don't have the privilege of passing up the opportunity of meeting the demands of their customers. They are obligated under the law to do so.

We have implemented those programs last April generally statewide. I think it is way too early to tell about the effectiveness of them, Mr. Chairman, members of the committee.

We have not only the audit programs and the goals to accomplish audits, which is a method to accomplish the real objective, and that is to conserve the capacity as well as the kilowatt-hour.

My feeling is that if the utilities are as successful in marketing conservation as they were in the fifties and sixties in marking additional electric consumption, our goals will be met.

The particular problems, I think, that we are facing now in trying to implement some of these cost effective measures is simply a problem with the present economic conditions. In 1970, as you know, you could buy a home at an 8.5-percent mortgage rate and you could borrow other money to make a home improvement at 8.5 percent mortgage rates.

Today, if you wanted to go down and get money to do a solar system or any other thing that is going to require an initial investment where you would have to pay, you are lucky if you can borrow money at 18 percent.

That does have a dampening effect on the cost effective conservation today that people would otherwise take if it wasn't for our present economic conditions.

I have included some of the details of that in my detailed statement, and I have also mentioned that one of the big problems and one of the real problems in Florida, because we are a growing State, is the cost of providing electric generating capacity to meet the demand.

It includes some statistics that in 1970 for coal-fired plants in Tampa Electric Co.'s service area cost $183 per kilowatt. We just approved the construction of a new plant last summer that is going to cost $1,342 per kilowatt, or a 633-percent increase above the construction price in 1970. Now this plant will not be completed until 1985.

The terrible financial problem that the utilities are facing is that the company is only worth—I say only worth. It is worth $906 million. However, they are going to have to spend $557 million in order to increase their capacity by 16 percent. They face a horrible economic problem in this State in terms of meeting the needs for our growth.

In conclusion, we have a catalog of all the energy conservation programs which the various utilities are involved in, the legislation that provides them the responsibility to develop whatever programs are necessary in order to accomplish the goals.

I think they are very stringent goals. On the other hand, they are things that we can do that are cost effective and that will accomplish more conservation.

I believe the commission will adopt new goals in 1982 which will create the demand on the part of the utilities to solve them. There is a unique approach in that law which merely says simply that if the utilities are effective in accomplishing their goals, we can recognize that as we authorize their rates and taking into consideration their rate of return.

On the other hand, if they don't meet their goals, we are authorized to take that into consideration and authorize their rate of return.

I think the utilities' attention has been gotten, and it has been gotten in a way that all understand. I think also as a result of the commission's activities in the summer and fall of 1980, in implementing those goals, the 1981 legislature took some far-reaching steps in revising the model energy code, as mentioned by some of the previous speakers.

That new law says simply that the department of community affairs who we are working with very diligently, will establish cost effective codes on new construction and major renovations.

Of course, as everybody knows, it is much cheaper to provide that type of construction in the first place than attempt to go back and renovate it.

If that law is implemented appropriately and properly, the commission will not have to implement its energy inefficient hookup charge, which there has been some discussion from some of my friends in the back, which Mr. Harley and other builders got rather excited about and joined us in getting the proper legislation passed.

So I think that as relates to electric and natural gas conservation, we are deeply involved. I think the incentives are there, particularly for the invester-owned utilities, where we do have rate setting and rate of return responsibility.

We expect them to accomplish those objectives. It is a new ball game. It is only 6 months old. I don't think it is early enough yet to have any conclusions as to what will work and what will not work.

A lot of utilities were giving a lot of conversation about conservation prior to 1980, but after 1980 we have to get more than conversation about it.

Mr. Chairman, if I might, I would make just one suggestion in terms of assistance that the Federal Government could provide that I don't think would cost them any additional funds.

It has been mentioned it has been proposed to eliminate the tax credit for some conservation measures. I would suggest that the amount of money that you are going to spend on the tax credit would be much more effective if you would in fact provide a direct rebate.

There is a cause and effect measure. For example, if you are going to spend $2,000 to put in a solar heater and you can get $800 back real quick, that is much better than waiting for some tax credit which may or may not materialize some time later on.

I think marketing studies will tell you—and apparently the automobile companies have come to recognize—that you can market a whole lot better with a rebate program than you can a tax credit.

I wish you would give serious consideration to that because I think it is much more direct and more effective and would penetrate the market without any additional cost to the Government. Besides that, you can keep track of it a whole lot better.

Thank you, sir. I appreciate being here, and if you have any questions, I will be glad to answer them later.

[The prepared statement and biographical sketch of Mr. Cresse follow:]

STATEMENT

OF

JOSEPH P. CRESSE

CHAIRMAN, FLORIDA PUBLIC SERVICE COMMISSION

# ENERGY EFFICIENCY IN FLORIDA'S FUTURE

## Conservation of Energy

In 1980, the Florida Public Service Commission, as directed by the Legislature, gave the highest priority to the need to conserve electric energy. While conservation has always been important, unstable international oil conditions, coupled with staggering increases in fuel and construction costs, combined to make this situation critical. The Commission developed conservation goals and required utilities to design and implement cost-effective, measurable programs to meet these goals.

Conservation makes sense for all electric customers. It is also important to the nation, which is dangerously dependent on foreign oil. One of the best answers to rising production costs is to hold down the increase in the demand for electric energy. The longer a utility can serve its customers with existing plants, the longer it can postpone building expensive new capacity.

It is particularly critical to hold down the use of electricity during the relatively short periods of high energy use. These short periods are called peak periods. A fairly large amount of an electric system's total capacity is needed only during these short periods. If demand during these periods can be reduced, a utility can serve a growing service area longer before expensive new generating capacity is needed.

## Florida Energy Efficiency and Conservation Act

The Florida Energy Efficiency and Conservation Act (FEECA), passed by the 1980 Legislature, is the statutory framework for a comprehensive approach to electric and natural gas energy conservation. The Act

required the Commission to adopt goals for the state to reduce growth rates of weather-sensitive peak demand, oil consumption, and kilowatt hour consumption. Working within very tight statutory deadlines, the Commission held extensive workshops and hearings during the last half of 1980 to develop the information necessary to adopt comprehensive and rational conservation goals. The Commission also increased its use of staff task forces to study particular matters and provide recommendations. A conservation task force was appointed to study, provide recommendations, and begin implementation of the Florida Energy Efficiency and Conservation Act.

This task force led to the establishment of the Conservation and Audit Section of the Electric and Gas Department. This section is responsible for overseeing utility conservation program development and implementation (including energy audits) and the measuring and reporting of each utility's degree of success in meeting its conservation goals.

The Conservation and Audit Section staff also directs public awareness activities; prepares reports to the Legislature on the Commission's conservation goals, utility conservation programs and marketing techniques; and makes appearances relating to conservation before civic groups, government agencies, and formal proceedings.

Although the primary factor forcing increases in electric consumption in Florida is population growth, the rate of growth in peak demand has exceeded the rate of growth in residential customers. To reverse this trend, the Commission adopted a goal of reducing the rate of growth in peak power demand to 72.25 percent of the projected rate of growth of residential customers by 1989. The goals also include: reducing the use of oil as a generating fuel by 25 percent by 1989; conducting energy audits statewide at a rate of 150,000 per year by 1982 and 250,000 per

year of 1984; increasing generating efficiency; and integrating non-traditional sources of power into utility service areas. These goals are ambitious since Florida is experiencing rapid population growth which increases demand. The Commission believes that with an all-out effort, the goals can be met.

Expressed in terms of the projections available during the 1980 goals hearings, achievement of the goals will result in the following savings:

EFFECT OF COMMISSION CONSERVATION GOALS
(Based on 1980 Data)
MILLIONS

| | 1979 | 1989[1] | PSC 1989 Goals | 1989 Reductions | % Reductions |
|---|---|---|---|---|---|
| # Residential Customers | 3.9 | 5.3 | -- | -- | -- |
| Kilowatt Hours | 93,800 | 144,700 | 123,700 | 21,000 | 14.5 |
| Summer peak Kilowatts | 18.0 | 28.2 | 23.3 | 4.9 | 17.4 |
| Winter peak Kilowatts | 20.0 | 30.7 | 24.6 | 6.1 | 19.9 |
| Kilowatt Generating Capacity | 24.9 | 37.7 | 30.8[2] | 6.9 | 18.3 |

[1]Utility 1980 projections.
[2]Result of Goals if achieved.

The projected peak kilowatt reductions will eliminate the need for 6,917,000 kilowatts of capacity and a capital investment of $8.5 billion. However, we are certifying the need for construction if the plants authorized will economically displace oil. Since 1980 we have certified the need for 1,967,000 kilowatts to economically displace imported oil.

As required by the Florida Energy Efficiency and Conservation Act, fifty-six electric utilities and the two largest natural gas companies

have submitted programs to meet the conservation goals. These plans were subject to Commission approval. To be approved, the Commission required each plan to meet the goals, be cost-effective, and be readily monitored. To help the smaller utilities, the PSC staff developed a nine point set of programs which was adopted by many utilities in its basic form.

The types of programs proposed by utilities varied. Florida Power and Light Company proposed nineteen programs. Some examples of these programs are ceiling insulation, appliance efficiency, solar water heating, water heater insulation, pool pump timers, cogeneration, load management, and criteria for energy efficient homes. All utilities have the conversion to high pressure sodium street lights which use less electricity as one of their conservation programs. Tampa Electric Company offers rebates for the installation of high efficiency heat pumps instead of resistance strip heating. Florida Power Corporation offers administrative assistance to consumers seeking conservation-related loans from lending institutions. Florida Power Corporation's new Super Saver Residential Construction Program offers a $350 incentive for compliance with the criteria. Gulf Power Company offers a one-year Super Good Cents Home Rebate Program for homes meeting specific standards for insulation, efficient heating and cooling equipment, and heat recovery units. Florida Public Utility Company offers its customers residential audits free of charge and will be implementing an Efficient Home Credit Program in the near future.

Some examples of other programs approved by the Commission are summarized below:

Heat Pump Campaign: A high percentage of consumers use electricity to heat their homes in winter. However, too many electrically heated

homes use low-efficiency resistance heaters. The result is a winter demand that is high and rising. To bring down winter peaks, utilities will mount aggressive campaigns to encourage customers to heat their homes with high-efficiency heat pumps or natural gas. The heat pump is actually an air conditioner with a cycle that reverses for winter heating. Heat pumps are much more efficient than the direct use of electricity in a resistance heater and can cut a customer's use of electricity for heating by as much as fifty percent. Natural gas heating is even more efficient.

Off-Peak Water Heating: Electric water heating accounts for ten to thirty percent of the average residential electric energy consumption. To shift some of the water heating load to off-peak hours, some utilities will promote the installation of large-capacity, superinsulated water heaters. Timing devices will permit the units to operate only during non-peak hours. Supported by advertising and cash and rate incentives, this voluntary program is expected to reduce demand.

Direct Load Control: In 1981 several utilities began experimental projects to reduce peak demand through the direct control of certain high-demand electrical appliances in customers' homes. A sophisticated communications system permits dispatchers to selectively interrupt power to home heating systems, water heaters, and air conditioners at times when demand on the system becomes excessive. Customers who volunteer receive rate incentives for their participation.

Energy Audits: Under this program, trained energy analysts inspect customers' homes, gathering information about insulation, weatherstripping, and other energy-critical features. The analyst provides the customer specific information on energy-saving home improvements

and estimated costs. In 1981, pursuant to Commission rules, companies were required to incorporate additional conservation measures into the energy audit, which will be promoted even more intensively than in the past. The companies also provide energy audit services to commercial and industrial customers. The audits will be extremely valuable to individual customers wishing to conserve energy. From a detailed inspection of home appliances and the building envelope, the auditor develops individualized recommendations for the customer's home and provides information on installers, contractors, and lenders. The program should prove useful in promoting participation in other conservation efforts.

Cogeneration: Several utilities have included cogeneration as a conservation program. Cogeneration embodies two concepts: (1) the sequential use of energy where waste industrial process steam is used to generate electricity, and (2) small power production. Both concepts entail dispersed electrical generating units that are electrically interconnected to the statewide transmission grid. The Commission, in 1981, adopted cogeneration rules which will encourage the use of this alternative resource by all electric utilities. Such cogeneration projects could include solid waste resource recovery systems, biomass generation from waste treatment facilities, and power generation at industrial plants.

As authorized by the Legislature, the Commission has implemented a conservation cost recovery clause to allow investor-owned utilities to recover costs of conservation programs. These costs are reviewed by the Commission every six months to assure that only the otherwise unrecoverable costs from approved, cost-effective conservation programs are passed on to all ratepayers who benefit from these programs.

It is extremely important to promote energy-efficient construction of new housing and commercial buildings. The Commission has encouraged utility programs which give builders and buyers clear guidelines for selecting energy saving options. The Commission is also assisting in the revision of Florida's building code to require cost-effective energy saving options to be included in new construction.

The fundamental problem with Florida's new housing construction is that the house buyer does not often make the decision about how to balance original cost and operating costs. Usually, the builder makes the decision about what equipment to install. Since the builder does not pay the monthly utility bills, he is primarily concerned with original cost and feels great pressure to install central air conditioning with strip heat and an electric resistance water heater. These units have the lowest original cost which enables the builder to price the house lower and enlarge the pool of potential buyers. This problem is compounded by the fact that very few lenders recognize that the lower utility bills of an efficient house should be taken into account when qualifying buyers. Actually, the relative advantage of an efficient house should increase over time, which would also increase the lender's security.

The Model Energy Code

Working with the Legislature and the Florida Home Builders Association, the Commission is assisting in developing legislation which will provide a framework for the establishment of new cost-effective building standards. New minimum efficiency standards which were developed by a consultant to the Commission will be presented to the Department of Veterans and Community Affairs. If these standards are adopted, the result will assist substantially in assuring that our current conservation goals will be achieved. The Commission can then turn its attention to conservation

of electricity in existing homes, which is far more difficult. New homes should be built to the most cost-effective standards because it is cheaper to do it right the first time.

Energy Conservation Research

The Florida Energy Efficiency and Conservation Act appropriated $3 million for research to provide data on conservation matters. A study of interrelationships among highly efficient devices, such as waste heat recovery systems, heat pumps, systems based on renewable resources, and existing utility systems, and for demonstration projects which would provide the data base for this study was undertaken. When this work is complete, the study will provide the data necessary for making sound decisions regarding alternatives to costly power plant construction.

Public Awareness

The Florida Energy Efficiency and Conservation Act also appropriated $1 million to the Florida Energy Trust Fund for the Commission to engage in educational, public awareness, and related development and demonstration projects on the subject of energy conservation. The PSC earmarked $635,000 for the purpose of educating the public on electric power demands in Florida including what is expected to happen to bills if peak demand is not reduced. The project also advised the public of the availability of conservation programs such as energy audits. The Commission selected a Jacksonville public television station, WJCT, Inc., to develop the public awareness campaign. Campaign development began shortly after January 1, 1981 and will continue until December 31, 1981. The Commission has also adopted a rule pursuant to the Act allowing the Commission to use up to $5 million of its trust fund to guarantee loans made by utility customers who install systems to cut weather-sensitive peak demand.

## Economic Conditions Affecting Energy Costs

The Florida Legislature, recognizing the serious nature of the world's political situation and the country's economic condition, intervened by mandating comprehensive energy conservation goals. These goals were deemed necessary because of prevailing economic conditions affecting energy production and costs.

Continuing inflation and record high interest rates have had a significant effect on almost all parts of the growth economy of Florida. In capital-intensive industries, such as utilities regulated by the Public Service Commission, the impact of rising prices for all goods and services and higher financing costs has been intensified. Coupled with the rapidly escalating prices for fuel used by electric utilities, particularly oil, these conditions have had an adverse effect on the price which Floridians pay for electricity.

Although the cumulative effects of inflation, capital costs, and other economic conditions have been strong in recent years, this is not a totally new problem. Since 1970, the Consumer Price Index has increased 112.4%. These economic problems also can be seen in home mortgage rates and the costs of construction. For example, the cost of an average single family home has increased 192.6% from 1970 through 1980.

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SOURCE: U. S. Department of Commerce, Bureau of the Census, Construction Reports, "New One-Family Houses Sold and For Sale," Series C25-78-10 (Washington, D.C.: U. S. Government Printing Office, December 1978). Also: Series C25-71-9, November 1971; C25-78-12, February 1978, and C25-80-7, September, 1980.

The prevailing interest rate for new 80% mortgage loans in 1970 was only 8.5%, while the similar loans today require interest payments of 18%. This represents an increase in capital costs of over 112% in ten years. The following chart shows that mortgage rates were relatively stable until 1978, and then almost doubled by 1981:

Mortgage Interest Rates
1970 - 1981

| Year | Interest Rate[1] |
|---|---|
| 1970 (June) | 8.50% |
| 1971 (June) | 8.50% |
| 1972 (June) | 8.50% |
| 1973 (June) | 8.50% |
| 1974 (June) | 9.00% |
| 1975 (June) | 9.00% |
| 1976 (June) | 8.75% |
| 1977 (June) | 8.40% |
| 1978 (June) | 9.50% |
| 1979 (June) | 11.25% |
| 1980 (June) | 12.50% |
| 1981 (June) | 17.00% |
| 1981 (Sept.) | 18.00% |

NOTE: [1]Rate for 80% loan to value
SOURCE: Tallahassee Federal Savings and Loan Association

In addition to raises in cost of capital, the ravages of inflation have caused sharp increases in gasoline prices paid by consumers. In 1970, a gallon of regular grade gasoline cost only $0.35, compared with $1.21 in 1980, an increase of over 245%. Likewise, fuel oil used by consumers for home heating rose from $0.18 per gallon in 1970 to $1.01 per gallon in 1980, for an increase of over 461%. There have been similar experiences with most items which make up the basic expenses for all individuals and businesses.

Increases in the costs of construction, interest, and all other goods and services result in higher utility operating expenses, which the Commission must consider in establishing rates. This upward pressure has not been isolated in Florida but exists throughout the United States. This Commission's task would be much easier if the annual rate of inflation was below 2% as it was in the early 1960s. At that time, the prime rate was 4.5% and utility bonds had yields of less than 5%.

Public utilities are used to some extent as a collection agency for a significant amount of taxes imposed by state, federal, and local government. Federal and state income taxes, gross receipts taxes, and regulatory assessment fees are revenue-sensitive. This means that for the Commission to give a utility the opportunity to recover a cost of one dollar, it must provide revenue which will cover not only the one dollar cost recovery, but also the increase in taxes which are automatically assessed on additional revenue. In other words, for every dollar of increased net operating income, an electric utility must be provided approximately 94 cents in additional revenue to pay the increased tax bill. In addition to the revenue-sensitive taxes imposed on investor-owned utilities, ad valorem, occupational license, and numerous other state and local assessments have also steadily increased.

## Electric Utilities

Investor-owned electric utilities, like other regulated utilities, are required to provide service for anyone in their service area. As population increases and businesses expand, electric utilities must invest in new generating facilities to provide the necessary electricity, regardless of high interest rates or increased construction costs.

To meet the increased demand for service, it has been necessary for electric utilities to add new generating capacity. Because of general inflationary pressures and increased environmental protection costs, these new plants cost far more than existing facilities.

Tampa Electric's experience in new plant construction is illustrative of the staggering increases in the cost of a new generating plant. Tampa Electric Company's first generating unit, at Big Bend Station near Tampa, cost $67,300,000 or $183 per kilowatt in 1970; the fourth unit, scheduled for operation in 1985, is expected to cost $557,000,000, or $1,342 per kilowatt -- a 633% increase in the cost per kilowatt. These increases in construction costs are shown below:

TAMPA ELECTRIC COMPANY
BIG BEND STATION

| Unit No. | Year In-Service | Installed Cost | KW Rating | $/KW | % Increase Over 1970 |
|---|---|---|---|---|---|
| 1 | 1970 | $ 67,300,000 | 367,000 | 183 | -- |
| 2 | 1973 | 68,000,000 | 337,000 | 202 | 10.40 |
| 3 | 1976 | 138,600,000 | 360,000 | 385 | 110.40 |
| 4[1] | 1985 | 557,000,000 | 415,000 | 1342 | 633.30 |

[1]Projected

Considering that Tampa Electric Company's total rate base (investment on which a return is earned) currently is approximately $906 million, it is easy to see that the addition of this expensive new plant will substantially increase the total rate base and will raise the average cost for all area ratepayers.

## Fuel Procurement

Unpredictable relationships among Mid East Countries, such as abrupt changes of power, sharpen our awareness that Florida is vulnerable to the possibility of fuel supply interruption. The cost of the fuel is extremely important because about half of an electric utility's expense dollar is used to purchase boiler fuel to generate electricity. In the past few years, the price of fuel, particularly oil, has increased much faster than the general rate of inflation. Increases in fuel costs and general inflationary pressures, as seen in the cost of construction and higher interest rates, are the main causes of increased electric utility rates.

## Current Conservation Activities

In recognition of present political and economic conditions including rising cost of fuel and construction and increasing interest rates, the Florida Public Service Commission has implemented several conservation-oriented activities. Present public awareness efforts include talk-show tours; slide/tape presentations; television, radio, newspaper, magazine, and movie theatre advertisments; a brochure; and time and temperature announcements. In development stage is a catalog of all energy conservation media products available from appropriate state agencies and utilities covered by Florida Energy Efficiency and Conservation Act. Fifty-six electric and two natural gas utilities have initiated the Residential Conservation Service Program. Conservation and Audit Section staff monitor the program and are now investigating RCS rule and energy auditor training curriculum revisions. The Department of Agriculture and Consumer Services, Division of Consumer Affairs, compiles, publishes, and updates a list of lenders, contractors and suppliers which is made available to

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energy audit customers. Covered utilities submit quarterly progress reports summarizing each program. The report includes number of installations and assumed gigawatt hour, kilowatt, and kilowatt hour savings. Conservation and Audit Section staff continuously monitor goal achievement by on-site visits and reviewing quarterly reports and also assist PSC accountants in preparation of Conservation Cost Recovery audits.

One reason that the Commission has given conservation of energy highest priority and has developed conservation goals is to encourage utilities to make a maximum effort to slow the growth in energy usage and postpone the need for plant additions. The utilities have no control over the basic element which is driving the construction programs, the increasing population of this state. In addition, the state's goal of fostering a healthy economy by attracting new businesses through an ongoing industrial development program contributes to the increasing demand for utility service and the need for new construction. Accordingly, the goals adopted through the Florida Energy Efficiency and Conservation Act attempt to reduce the rate of growth of demand and energy consumption but cannot eliminate growth altogether. Some construction can be postponed, but it cannot be avoided if utilities are to meet the requirements of their customers. Our conservation goals are designed to eliminate the wasteful use of electricity, while concurrently recognizing that growth will occur, and that the utilities will meet the needs of the citizens of Florida in the most cost-effective manner.

BIOGRAPHICAL SKETCH

Joseph P. Cresse

Chairman (Term as chairman - Jan, 1981-1982)
Florida Public Service Commission
101 East Gaines Street
Tallahassee, Florida 32304

Summary of Recent Experience

From 1960 to 1978, progressively responsible experience with the State Budget Commission and, after governmental reorganization in 1969, the Department of Administration, which was created to administer the responsibilities of the State of Florida in Budgeting, Personnel, Retirement and Planning. The Department also had primary responsibility for energy matters and other functions. Served as Budget Examiner, Assistant Budget Director, State Budget Director, and Assistant Secretary. Also, advised the Governor, Lieutenant Governor and Secretary concerning these responsibilities.

Highlights of Recent Experience Due to Special Assignment:

Assisted the Governor and Legislature during the special 1978 Legislative Session in drafting and passing legislation protecting title to state sovereign lands.

Served as a member of the Florida Advisory Council on Intergovernmental Relations until 1979, which was created in 1977 by the Legislature to improve coordination and cooperation among the state and its local governments, other states and the Federal Government.

Appointed by Governor Askew in 1976 as a member of the Deferred Compensation Advisory Committee and elected Chairman. Resigned in 1977 due to time constraints after guidelines were approved for the Florida plan by the Governor and Cabinet.

Chaired a 1975 Task Force which developed financial and organizational plans, subsequently approved by the Legislature, to dismantle the Inter-American Center Authority (Interama) so that the real estate assets of the Authority were preserved for public use.

Appointed by Governor Askew in 1975 to a state negotiating team to settle a dispute with a major oil company which successfully negotiated a settlement involving oil, gas and mineral rights on state-owned submerged lands.

Mr. FUQUA. Thank you, Mr. Cresse.

Now we will hear from Mr. Shearer from the Gulf Power Corp.

## STATEMENT OF JOHN D. SHEARER

Mr. SHEARER. I would like to summarize my comments, too.

Mr. FUQUA. We will make your statement a part of the record, if you want to summarize your statement as submitted to us.

Mr. SHEARER. Thank you, Mr. Chairman.

What I wanted to do was give you some insight from the inside on how our company has responded to the changing economics in our operation and some of the decisions that we have made and some of the activities of our company.

We are a relatively small electric utility in the State. We serve 213,000 customers. Unlike the two major electric utilities in the State, we are coal fired, primarily coal fired. We have 11 offices located in small communities and large towns in our service area.

We are also a member of the southern electric system, which includes Alabama, Georgia, Mississippi power companies, and collectively our system supplies the electrical requirements of 9 million people.

Each of our offices has traditionally been broken into three primary basic functions, one responsible for marking our service, the other responsible for providing the service, and the other responsible for billing.

Classically, these are the marketing and load management department, power delivery department and customer accounting department. We also have staff functions that support these functions in the general offices at Pensacola.

Now our company—or my department, marketing and load management—has been traditionally concerned with the customer's side of electricity, that is, with what goes on in the house or industrial plant or commercial building, the appliances that consume energy and the economics of the use of electric energy as it relates to the customers' needs for electricity.

Fifty years ago our company was engaged in selling the benefits of electric energy. The things that we were promoting in those days were electric cooking, electric ironing and clothes washing, in addition to promoting new hookups, new service, much like the cable television companies are today.

Following World War II, our emphasis was on the new modern conveniences, such as clothes dryers, hot water heaters and air conditioning, and in the 1960's we became more selective in our promotional activities, selling electric space heating, which is comparable to the phone company's promotion of offpeak, Sunday night from whatever long distance consumption.

Then in 1973-74, when the oil embargo hit and when the economics of the operation of electric utilities became pretty different from what they had been for 50 years, our department, within Gulf Power, was still thinking about what we could do in the way of promoting electric heating, electric heat pumps, and insulation which made us more competitive.

But as the rates for our service began to turn around, those of us engaged in marketing in our company began to take a new look at

the new environment. We were a little bit confused as to whether our plans or initial direction was correct.

As is obvious, I think that our customers at our company were like everybody else's customers—they weren't as friendly as they had been in the past. Locally, we had politicians running for office who were actually running on a platform that was anti-Gulf Power Co., and we learned quickly that that could win elections.

Our internal projections that we perceived in trying to plan our marketing activities said rates would continue to increase, inflation would continue and that our fuel prices could be expected to go up.

So, we really looked at what we had been doing. After 50 years of sales promotion, we turned our organization around 180 degrees and became actively engaged in what is sometimes referred to as demarketing, or energy conservation, in 1975.

When I say that we turned it 180 degrees in 1 year, a lot of people are a little skeptical of that, but it was really not all that difficult to do in our company.

Our organization was comprised of professionals who had been selling and dealing with customers related to energy use. We had developed sophisticated computer systems to evaluate electric equipment consumption, patterns of consumption. We had trained our people in the energy principles of heating, ventilating, air conditioning, lighting, electric cooking, water heating, heat transfer, thermal dynamics, and energy economics.

We enjoyed the strong business relationships with homebuilders, architects, engineers, lenders, realtors, developers, building managers, and other key customers. For years we had been making things happen in the marketplace, and we felt that the things that had happened as a result of our efforts were good things.

We realized that we could not continue to promote increased use of electricity to customers who were already disturbed about their electric bills. We knew that we had to make things happen in a different way.

I would like to give you a few thoughts about how this transition took place in our company and a couple of the things that we anticipated that weren't major problems with the management.

One of the things that we wondered about was, when is somebody going to slap us over the head about our revenues. We had initially been responsible for increasing revenues or selling additional consumption that would increase revenues. The other thing we were concerned about was the statistic in our business that we had traditionally, for 50 years, been looking at, and that is average consumption or average kilowatt hours per customer.

We really didn't get beat over the head in our department significantly about that, and I have stated in my written testimony the sort of things that did happen.

In retrospect, I guess there are a few business principles that we weren't aware of or we didn't realize that top management was aware of at the time.

First of all, marketing. Whether you are demarketing or promoting conservation, in any business there is a long-term effect. It takes a long time for the results of that kind of activity to make significant changes in the business statistics, the revenues, the kilowatt hours per customer, or whatever it is.

Regardless of this—one of the managers at our company said, "Well, what is this going to do to the kilowatt hour per customer?" I said, "Well, it is going to reduce it." He said, "What we will do, we will just make it up in volume."

It was a surprising statement and we got to laughing about it, and later we got to thinking, well, what did he really mean because he is a smart manager and knows what he is talking about.

We came to the conclusion that what he meant by making it up in volume is making it up in volume of satisfied customers as opposed to kilowatt hours.

We break our market down into traditional lines, most utilities having the same classification. We break it down into industrial, commercial, street lighting, and residential classifications. We also have a further breakdown in our planning and thinking, how we approach the market, and that is into new and existing customers.

Our organization itself is tailored to those markets. We have a power-sales group, which includes a manager with specialists assigned to industrial, governmental sales, commercial sales, and chain accounts. We also have a residential manager with specialists concentrating on new homes, existing homes, and home service.

These, coupled with a research and technical services staff and some 70 field-customer contact representatives, is our marketing department.

Our basic goal in marketing is to understand the needs of our customers in terms of energy and the economics of energy from their point of view, to evaluate the various options available to meet those needs, and to promote the use of technologies that are most cost, effective for our customers.

Our approach varies with each situation ranging from customer-tailored designs for large industrial and commercial installations to one of a merchandising approach for groups of customers with common energy needs.

There are cases in which our involvement of our people amounts or is limited to the negotiation of contract provisions for large customers. An example of that would be a co-generation facility.

There are other cases in which we design, specify, install, and finance the installation of energy-saving equipment. An example of that is sodium vapor street-lighting systems. Of course, there are all kinds of situations that fall between the two.

Our conservation program planning keys upon putting our assets to best use, which boils down to making the most conservation happen in the marketplace for the least cost to our company.

While today's marginal economics appear to justify just about any kind of energy conservation-related promotion, to us the challenge is to make things happen in the marketplace at the lowest cost to our company and, therefore, our ratepayers.

If this means that if we have a choice between persuading homeowners to weatherize their homes through a direct promotional campaign, to advertise and educate, and et cetera, say at a cost of $100 a home as opposed to buying that conservation in the form of a grant or something like that, we would opt for the less expensive method of getting the job done, which would be the promotional program in that example.

It is a matter of price for us in seeing to it that we do the job for the least cost.

Now the new home market at Gulf Power—you heard something about new construction in the State—is a significant market for us in terms of potential for energy conservation. We have got 183,000 residential customers as of 1980, and of those, 60,000 were built between 1970 and 1980.

In 1970, 21.9 percent of all the homes that we served had central air conditioning and 13.8 percent had central electric heating. During the 1970's, 90 percent of all new homes were equipped with central air conditioning, and 70 percent with electric heating, meaning that new construction was the primary cause in the growth in the stock of central air conditioners and heating in the 1970's, with a factor of 3:4:1 and 4:0:1 respectively.

We have a program called the good cents home program. I have got a package of information for each of you, which is for new homes based on a rigid performance standard, and that is to reduce heating and cooling and water heating energy requirements by one-half. (See appendix for information.)

Now, what this program means is that if there is an energy code or a standard of construction prevailing in our service area and the code is really the touch point, we want to cut whatever that utility is in half.

In other words, if our company is going to spend money to promote energy efficiency, we want to enhance the efficiency from that which is required by law.

The kinds of energy measures that help or contribute and that we recommend to meet this performance standard are R–19 insulation of the floor; R–19 insulation in the walls, which is comparable to the 6-inch law in the Arkansas plan that you probably heard about; R–38 insulation in the ceiling; double-pane windows; insulated doors; insulated duct system; heat pump heating, or the equivalent; and a 50-percent energy efficiency ratio water heating as opposed to direct resistance, which could be done with the saltwater heating, heat pump water heating or heat recovery.

Heat recovery seems to be fairly logical for Florida. We promote this program in a variety of ways very similar to how most businesses promote things—advertising, direct contact, technical information with homebuilders, realtors, lenders, and other decisionmakers in the home industry.

We think our program has been pretty successful. Practically every builder in our service area has built good cents homes. Our market penetration of good cents homes ranges from 40 to 50 percent, depending on the mix in the market.

This year, 10,000 good cents homes were completed. In fact, next month, which is significant for us, it will be the focus for a 1-day promotion in-house. Another important aspect, a side benefit of our program, we think is the construction in new homes has been generally upgraded for our service area.

When I said that 40 to 50 percent of the homes qualified for our performance standard, that means that 60 to 50 percent don't, but let me give you a few statistics on the kinds of features that are standard practices in our service area: wall insulation of all new homes built in 1980, 52 percent at R–19 or better; ceiling insulation

in all new homes, 64 percent at R-38 or better; double-pane windows, 74 percent of all new construction, which means that double-pane windows for our area is a standard.

There are very few places in the Southeast where when you go to the supply house you have to special order single-pane glass. The doors, insulated doors for a lot of these, have been very well accepted. I don't have the number here.

There is a mechanism here that is is really important, and that is really the magic in this kind of a program. The proof of our program revolves with the electric people. We are the people that are telling the potential home buyer or the existing homeowner, the commercial business or industrial company, that we are setting ourselves up and establishing ourselves as experts in the energy field and energy conservation.

We are the ones making the recommendations. We say these are the things that you need to do in your business, your house, or what have you. We are also the ones that are there next year after 12 months of electric bills have come in, and we are available to the customer for him to come say it did or did not perform the way you said it would.

I see it, and I say in my testimony that it is a closed loop with Gulf Power Co., in our case sitting right in the middle of the loop. We are responsible for both ends.

We have a similar program, and we call it good cents home improvement for existing homes. It consists of an energy audit, a certified contractor program, a mechanism to give us somebody to put the conservation features in the home.

We started it about a week after President Carter's speech in 1977. Since that time, we have audited somewhere around 25,000 homes, and we estimated the contractors that work with us have audited an additional or made an additional 50,000 sales calls, which is close to an audit; 4,346 homes qualified as good cents homes improvement award, which requires a series of features, not just one feature, but a performance standard for existing homes; and another 13,200 installed at least one energy saving feature. Most of those are ceiling insulation upgrade.

The second most popular is probably storm windows.

We have several programs underway for our commercial customers. We have a street lighting conversion program which we will be submitting to the commission in the next few months. We are in constant daily contact with our large industrial and institutional customers and working with them in accordance with their needs on an individual basis.

We make the statement that energy conservation is really business as usual at Gulf Power, and we still have a long way to go and have a lot of potential out there.

So, I mentioned a few programs that we do have going on. We have a lot of planning going on not only enhancing the additional programs, but adding to our programs.

Now, as to one of the most important issues, and that is how does this conservation affect plant construction and what does it do really to the overall economics of our country and our system.

We included the effects of our conservation programs and have been doing that since 1975 in our forecast of kilowatt hours and

peak demand, and therefore directly impact our long-term facility plan because that is the basis of a facility plan.

One of the most difficult things that we found—and I think you probably heard something about this—but one of the most difficult things for us is to try to separate between what is commonly referred to as energy conservation.

Now, it seems that a lot of people are confused about the fact that you add insulation or you do something permanent to a building or an industrial plant and therefore you are going to get conservation.

That is not always true. You can improve the ability or the manageability of a structure in terms of energy, but you really cannot control the homeowner or the building operator in terms of how much energy they use.

When I talk about price elasticity, I guess what I am talking about is that conservation that happens because the customer's lifestyle, maintenance action, trends in increased appliance efficiency, governmental things from the Federal Government maybe require more efficient appliances.

Really, I guess, price elasticity to me means things we didn't directly influence, the things that our company's programs didn't directly do. When I am talking about energy conservation, I am probably talking about those things we did directly impact and we know are a permanent improvement in the marketplace.

These two factors—the price of electricity plus the results of our own initiatives in conservation—have caused a significant reduction in our projections of kilowatt-hour sales and peak demand.

We made a quick study about a year ago that said that, as of 1979, the reduction in peak load growth was 500 megawatts. We are, between 1973 and 1979—6 years—a 500-megawatt reduction. At that time, we were a 1,500-megawatt system, so 500 megawatts was extremely significant to our company.

The breakdown on that was about 80 percent of the price elasticity factor or that reaction to the increases that had been in place, the energy cost, about 20 percent of that reduction in 500 megawatts was what we could take credit for as a direct result of our activities.

A couple of plants that had been planned for our system or our financial participation had been deferred. Plant Daniel, which went into service this summer, was scheduled to be completed in 1979, a delay of 2 years. Another power plant originally scheduled for 1979 in Garyville, Fla., was canceled and no longer appears in our long-term plans.

Both of these cancellations and deferments add up to millions of dollars in savings and are a direct product of conservation price elasticity.

Caution to you in terms of judging utility programs on the basis of how good the deal sounds to you, would you buy this sort of thing if you were offered a zero-interest loan, what have you?

A lot of times when people decide the programs are good, they are basing their opinion on what they read in the newspaper or what they heard the deal was. I would stack our results up with anybody in the United States in terms of utilities, in terms of the

number of houses that have made permanent conservation reductions, particularly in the residential area.

I wanted to say a few things about the public service commission's programs. The commission has been supportive of our programs though the years. That is very, very important within the utility because it has really added to the commitment of our management and the faith of feeling that we were doing the right thing. It has helped us in being able to budget and get the resources we need internally to expand our programs.

I think it is very important and very unique that the Florida Legislature has shown the responsibility of assigning utility-sponsored energy conservation programs to the public service commission because I think that there has to be a balance between the physical responsibilities and the cost of the program and what that would do to rates in the long term.

In other words, it goes back to what I was saying earlier about the cost-effectiveness of a conservation program. There is a tremendous margin of savings available in terms of weighing conservation against construction of new powerplants.

Some people talk about $1,000 a kilowatt and it is an impressive number, a number you probably heard quite a bit. For my money, I think it is very important the utility not spend that $1,000 to conserve a kilowatt if $100 would do the same job. I think that is why it is important the commission was assigned that responsibility.

Energy conservation is a very important element in our plans to provide for the energy needs of our customers. I appreciate the opportunity to appear here. Thank you.

[The prepared statement of Mr. Shearer follows:]

Direct Testimony
of

John D. Shearer
Director of Marketing and Load Management

Gulf Power Company

I am John D. Shearer, Director of Marketing and Load Management at Gulf Power Company. Our Company provides electric service to 213 thousand retail customers in the Western ten counties of the Panhandle area of Florida. We have offices in the cities of Pensacola, Milton, Century, Fort Walton Beach, Niceville, Defuniak Springs, Crestview, Chipley, Bonifay, and Graceville, and Panama City. Gulf Power Company is a member of the Southern Electric System, which includes the Alabama, Georgia and Mississippi Power Companies. Collectively, the Southern Electric System provides the electrical requirements of nine million people.

Each office is organized into three basic functions responsible for marketing, serving and billing customers, respectively. Organizationally, the three Departments are the Marketing and Load Management Department, Power Delivery Department and Customer Accounting Department with the staff functions located in the Pensacola General Office facility.

The Marketing and Load Management Department, which is my Department, has traditionally been concerned with the customer side of the electric meter--with the appliances that consume energy and the economics of the use of electric energy as they relate to the customer's needs. Fifty years ago, we were engaged in selling the benefits of electric cooking, ironing and clothes washing--in addition to promoting hook-ups much like the cable television companies are these days. Following World War II, our emphasis

was upon the new modern conveniences; clothes dryers, water heaters, and air conditioners. We became more selective through the sixties. selling electric space heating, much like the phone people promote special economy long distance calling hours on weekends. The electric heating energy sales tended to counter balance our growing summer air conditioning load, and thereby, improve the utilization of our plant facilities year round. Our rates went down consistently both in current dollars and in real terms during those years, and the marketing activity amounted to telling our customers of the benefits of using low cost labor saving electric appliances in the home; to increase productivity at work; for better safety on the streets and to enhance quality of life in general.

We were still thinking about promoting electric heating, good insulation, heat pumps and total electric living in 1975, when our rates began to turn around--and started on a new and unprecedented upward trend. But, those of us engaged in the marketing of electric service at Gulf Power were somewhat confused about the new environment around us. Our customers were no longer as friendly as before. Politicians were running for office on an anti-Gulf Power platform and they were winning elections. Our internal projections called for rate increases, continued inflation and higher fuel prices. And because of all of that, we relooked our position in Marketing, and in 1976 we were in conservation. After close to fifty years of sales promotion, we turned our organization around 180 degrees and became actively engaged in what is sometimes referred to as de-marketing.

Now, when I say that we completely turned the marketing activity around in 1976, don't think that it was all that difficult to do. For years the professionals in our marketing department had been selling to their customers. We had developed sophisticated computer systems to evaluate electrical equipment consumption patterns. We had trained our people in the engineering principles of heating, ventilating, air conditioning, lighting, electric cooking, water heating, heat transfer, thermodynamics, and so on. We enjoyed strong business relations with homebuilders, architects, engineers, lenders, realtors, developers, building managers and key customers. For years we had been making things happen in the marketplace, and we felt that the things that had happened as a result of our efforts were good things. And we realized that we could not continue to promote increased usage - - to customers that were already disturbed about their electric bills. We knew that we had to make things happen in a different way.

Promoting conservation might seem like an unnatural activity for an electric utility, because it means selling people on using less of our service. And it was a little unnatural for many of us five years ago. We wondered when somebody at the top would ask about the impact upon revenues or KWH per customer. The fact is that no one ever did get highly exercised about revenues, and on the one occasion that I was asked about KWH/customer, it was said, "Oh well, we'll just make it up in volume." I didn't understand that reaction at the time, but I did know that we had the support of top management; and we were encouraged

to move forward with our conservation programs--using the same techniques of selling and promoting as we had in past years--to make something happen in the market.

In retrospect, I have a few thoughts about how this transition took place at Gulf Power. We realize now that top management understood a fundamental business principle in connection with the impact of our conservation programs upon revenues. Marketing is a long term effort whether you are promoting electric heating or introducting a super insulated home program. It takes time for marketing programs to penetrate the market and cause things to happen. Therefore, regardless of whether a program is designed to increase revenues as a result of selling more electricity or reduce revenues as a result of conservation, it takes a few years to build those kinds of programs into something significant as compared to the total business base.

One of the most important conclusions that I have come to in reminiscing the early years relates to the "make it up in volume" statement. It relates to another basic business principle--which is that the customers are a business' greatest asset. And our customers had told us that they did not approve of higher electric rates-- and we had listened and our conservation programs provided a viable alternative to higher electric bills. So, I now know that what was really meant when it was said, "We'll make it up in volume", was that we would make it up in volume in terms of satisified customers.

Our market is broken down along traditional lines including the Industrial, Commercial, Street Lighting and Residential classifications. We have further breakdowns in terms of new and existing customers. Our organization is tailored to these categories of customers and to their needs. It includes a Power Sales group including a Manager with specialists assigned to Industrial, Governmental, Commercial and Chain Accounts. It also has a Residential Manager with specialists for new homes, existing homes, and home services. These coupled with a Research & Technical Services staff plan the conservation programs and support the effort of some 70 field customer contact representatives located throughout our service area.

Our basic goal is to understand the needs of our customers in terms of energy and the economics of energy from their point of view--to evaluate the various options available to meet those needs and to promote the use of those technologies that are most cost effective for our customers. Our approach varies with each situation ranging from custom tailored designs for large industrial and commercial installations to one of merchandising for groups of customers with common energy needs. There are cases in which our involvement has limited the negotiation of contract provisions for large customers, that plan to install cogeneration facilities, for example. And there are others in which we will design, specify and install energy saving equipment, such as sodium vapor street lighting systems for municipalities. And, of course, there are all kinds of situations that fit between these two extremes.

Our conservation program planning keys upon putting our assets to best use which boils down to making the most conservation happen in the marketplace for the least cost to the Company. While today's marginal economics appear to justify a number of strange promotions our management challenge is to develop and implement those conservation programs that make the best economic sense. This means that if we have a choice between persuading homeowners to weatherize their homes through a direct promotional program at a cost of $100 per home - - as opposed to paying the cost of that weatherization for the customer and putting it on the electric bills through increases in electric rates - - then we would opt for the promotional program. This is a matter of pride for us and is the process that we have followed in the development of our conservation programs through the years.

The new home market at Gulf Power offers a significant potential for energy conservation. Of the 183 thousand residential customers in service in 1980, 60 thousand have been built since 1970. Whereas, 21.9 percent of all homes (27 thousand) had central air conditioning and 13.8 percent (17 thousand) had central electric heating in 1970. Ninety percent (54 thousand) of those built during the decade were equipped with central electric air conditioning and 70 percent (42 thousand) with electric heating. New construction was the primary cause of the growth in the stock of central air conditioners during the seventies with a factor of 3.4:1 to 91.5 thousand and for central electric heating with a factor of 4.0:1 to 69 thousand during the ten year period. Our Good Cents program for new homes is based upon a rigid performance standard designed to

reduce heating and cooling, and water heating energy requirements by one-half. We specify ten features that, in combination, will allow home builders to meet the performance criteria. The ten features include:

| | Good ℓents Home | FHA (Minimum Property Standards) |
|---|---|---|
| Floors | R-19 | None |
| Walls | R-19 | R-11 |
| Ceiling | R-38 | R-19 |
| Vapor Barrier | 6 Mil Poly | None |
| Window | Double Pane Insulation | Single Pane |
| Doors | Metal Clad Insulated | Hollow Core Wood |
| Attic Ventilation | Power Vent Fan or Equal | Gravity |
| Duct Work | R-19 | R-4 |
| Water Heating | Heat Recovery | Resistance Elements |
| Heating System | Heat Pump | Resistance Furnace |

These amount to close to a doubling of the current FHA standards.

We promote this program in a variety of ways, including advertising, brochures, group presentations, and direct sales. Our basic goal is to create consumer demand for Good ℓents Homes. On the other end, we work with local home builders, realtors, lenders, and subcontractors--providing them assistance in meeting the consumer demand.

This program has been very successful in terms of market acceptance; practically every builder of new homes has built Good ℓents homes. Market penetrations for Good ℓents Homes typically

range from 40-50 percent, depending upon construction activity. The ten thousandth Good ℄ents Home was completed in September of this year, which is significant for us at Gulf. Another important aspect of our program is that new home construction for our area has been generally upgraded due to the consumer awareness that we have created. There are a number of new homes that do not qualify for the Good ℄ents distinction but that do include the features. For 1980, the features breakdown was:

--wall insulation, 52 percent of all new homes

--ceiling insulation, 64 percent of all new homes

--double pane windows, 74 percent of all new homes

Insofar as homeowners are concerned, the proof of Good ℄ents ultimately revolves around the electric meter. Gulf Power offers an alternative to the problem by way of the promotion of Good ℄ents Homes. We tell the homeowners what to expect in the way of operational costs, and in the final analysis, the meter is our quality control. It's a closed loop with Gulf Power placed squarely in the middle of the situation, assuming a great deal of responsibility for the final results.

We have a similar program of Good ℄ents Home Improvements for existing homes. It consists of energy audits and a certified contractor program mechanism to install the conservation features in the homes. Since 1977, we have audited over 25,000 homes, and we estimate that the contractors have made an additional 50,000 sales calls. 4,346 homes have qualified for the Good ℄ents Home Improvement Award, and another 13,200 have installed at least one energy saving feature.

Similar programs are underway for our commercial customers. A street lighting conversion program is being planned for implementation in 1982. We are in constant daily contact with larger institutional and industrial customers working with them individually. And while energy conservation is business as usual at Gulf Power, we have a long way to go. So, while the programs I just mentioned are underway, we have a number of others under consideration as well as extensive basic research to support future efforts.

Our conservation programs are reflected in the Company forecast of KWH and peak demand and, therefore, directly impact our long term facility planning and construction programs. One of the major difficulties in the forecasting process is separating between price elasticity and energy conservation. I guess the best way to try to explain what I mean here is to define price elasticity as the reductions in energy consumption due to customer lifestyle and maintenance actions--trends in increased efficiencies of appliances and electrical equipment. Whereas "energy conservation" here means the programs undertaken by the Company to promote permanent improvements in the marketplace that can be counted upon to reduce energy consumption directly. Taken together, these two factors have caused significant reductions in our projections of KWH sales and peak demand. Plant Daniel, which went into service this summer, was originally scheduled to be completed in 1979. A power plant in Caryville, Florida--originally scheduled for operation in 1979--was cancelled. These changes involve hundreds of millions of dollars, and putting them off or eliminating the need for them acts to hold down electric rates over the long run.

I know that you have heard a lot about the programs of utilities in California, Oregon, TVA and in other regions. And I hope that you are not dissappointed with my report this morning. Sometimes it's the "deal" or the "plan" that gets peoples' attention... because it sounds so good. I have personally visited a number of these areas, I have talked to the utility people and others in the community and compared the results of their programs with ours. And while I may be biased and might appear to come up short on sophisticated theory - - I would stack up Gulf's actual results in the market place with any utility in the United States.

As you know, the Florida Public Service Commission regulates the activities of our Company and the other electric utilities in Florida. The Commission has been very supportive of our programs through the years and because of that has added to the committment to our efforts internally. The Florida Energy Efficiency and Conservation Act of 1980 made it very clear that the Commission has the responsibility for utility sponsored energy conservation programs and provided the Commission with the legal tools to get the job done. It seems to me that there are a number of factions both within and around government at all levels that view electric utilities as social institutions and see electric bills as a mechanism to collect and redistribute our customers' income. Fortunately the Florida Public Service Commission is responsible in a fiscal sense for the programs and activities of the States' utilities and are committed to seeing that all such programs are "cost effective" in terms of the impact upon electric rates. We view energy efficiency and conservation as a very important element in our plans to provide for the electric energy requirements of our customers, and while there might be disagreements from time to time about just what is the most appropriate approach to getting the energy conservation job done - - it is a way of life at our Company and we are deeply committed to our programs.

Thank you.

Mr. FUQUA. Thank you very much, Mr. Shearer.
Mr. Sharma.

## STATEMENT OF A. K. SHARMA

Mr. SHARMA. Thank you, Mr. Chairman.

My name is A. K. Sharma. I work for the city of Tallahassee in the electric department as the system planning engineer.

I was asked to be here today to give you a report on Tallahassee's activities regarding energy conservation programs. For this purpose, I brought along with me—and which is enclosed—a report prepared by me last month, but I do not think I have enough copies to go around for everybody. This report contains a brief summary of Tallahassee's activities for the second quarter ending of 1981. The data for the third quarter ending are under compilation now and are not available.

The Florida Energy Efficiency and Conservation Act of 1980 required the city of Tallahassee, along with all other utilities in the State, to prepare an energy conservation plan. This plan was submitted to the Florida Public Service Commission and was approved in April 1981. The following status report refers to the various conservation programs included in the said approved plan.

With this much preface, I will now turn over to my prepared report.

We had altogether 23 programs. No. 1 was residential energy audit program. As of July 31, 1981, the city had received 1,308 requests for energy audits of which 941 have been completed. So far, no requests for financial assistance or installation assistance have been received. And we have done only three post-installation inspections.

Our second program was alternative audit program, a total of 149 class B and class C audits have been requested and 67 of those were completed.

No. 3, Commercial Audits. In February 1981, the city completed a commercial consumer survey. During the survey, opinions from sample customers were received as regards to energy conservation issues through audits. Meanwhile, the Department of Energy initiated a program titled Commercial and Apartment Conservation Service, CACS. However, the final rules for the program are yet to be established. Moreover, no funds are available to carry out this part of the program.

Under these circumstances, no progress has been made in the commercial audits portion of our program. However, the energy conservation committee of the Florida Electric Power Coordinating Group is monitoring the Department of Energy's activities in regards to the CACS.

Our fourth program is City Buildings Audits. Subsequent to the adoption of the conservation plan by the city, the electric department advertised and received proposals from consulting firms to perform the technical assistance analysis for the 23 city-owned buildings to be audited.

A local firm was selected, a contract entered into, and presently work in this area is in progress.

Consumer Education. The city's energy conservation section has presented numerous lectures and presentations on this subject, and here we appreciate the help of the public service commission and the Governor's Energy Office in preparing those lectures and assistance. A list of the accomplishments is attached as attachment A, so I would rather not go through each of them.

As I said, the public service commission is actively involved in this phase of the program.

Fix-up Program. This program is mainly centered around weatherization of houses owned by low-income and economically disadvantaged families. The funds came primarily from Federal Government grants, but unfortunately since May 11, all work in this program has been halted. These programs, incidentally, came from the CETA program and CETA workers were engaged to install them. We still have some funds for materials but we do not have any money, as I say, for the labor part.

Our next two programs are water heater timers and water heater blankets. These two programs of the conservation plan called for the city to promote the installation of the items and to provide a listing of vendors selling the items.

No large scale promotional program has been launched yet; however, during the course of the home energy audits, the auditors explain to the homeowner the benefits of these two items.

Nos. 9 and 10 are waste heat recovery for water heaters and heat pumps. Our city is yet to embark upon a full-scale program of promoting the above two items. However, the city's electric department from time to time receives inquiries regarding the beneficial features of the above appliances. The local builders also have been educated on that line whenever an opportunity came by. However, it is felt that due to the high initial cost of these two appliances, unless it is a new construction, most homeowners are not interested in changing over from conventional air-conditioning and water heating to the new, more energy-efficient methods.

Our next program is water flow restrictors. The consumer service department completed sending two each of these restrictors to every customer connected to the city's water service. Over and above, establishments like apartment complexes and senior citizen centers, and so forth, were provided with an extra supply of these devices. Presently, the energy auditors leave behind a couple of these restrictors at every house they complete an audit on and will continue to do so as the supply lasts.

Our next important program is conversion to natural gas. The city's gas department is doing its best to lure new customers to its gas system. The gas department proposed monetary incentives to new customers which was rejected by the city commission. However, the commission approved a proposal whereby a customer converting a hot water heater to natural gas can receive a gas tap free of charge. The commission also approved $25,000 for advertising purposes.

The next program is lifeline rates. This item was one of the standards covered by the Public Utilities Regulatory Policies Act.

Under a consent order the municipalities left this item for the Florida Public Service Commission to determine its appropriateness. Of late, the Florida Public Service Commission has rejected

this standard as not cost based. Therefore, the city also has not pursued this any further.

Time of day rates: The Florida Public Service Commission recently accepted this PURPA standard as appropriate and thereby giving its green signal for adoption by utilities in the State.

The city of Tallahassee will ask for voluntary participation of customers in this time of day rate program when we have our two-way load research and load control equipment installed. This is described in more detail in the direct load control program.

Inverted seasonal rates: The city commission as well as the Florida Public Service Commission rejected this rate, so nothing much has been done on that.

Cogeneration: On March 24, 1981, the city Commission of Tallahassee adopted the cogeneration rules which were then submitted to the FERC as required by law. So far, no cogenerator has come forward with any proposal to be connected to the city's grid system.

Solar plans: The city of Tallahassee has plans on monitoring some solar water heaters around here, but on that program not much progress has been made at the present time.

Direct load control: The electric department is currently working toward finalizing the specifications of the bidirectional communication equipment necessary for this program. It should be noted that the same equipment can also be utilized for the load research—required by PURPA—time of day rates, remote metering, and other similar functions with very little modification or additions. The electric department has acquired an amount of $350,000 from the city budget for that use for this fiscal year, and the work is in progress now.

Voltage control during system peak: Tallahassee, having an excess generation capability at the present time, did not have to adopt voltage reduction practices yet.

Sodium vapor lights: As of June 30, 1981, 946 100-watt sodium vapor lights have been installed, some of these being the conversion from existing mercury vapor street lights, and others were altogether new installations at the requests of customers.

Our program No. 21, Jackson Bluff hydroelectric project: The construction license application has been accepted by the FERC for process on this project. The electric department has received word through the grapevine that the license may be issued within 6 to 8 months. Negotiations are in progress with the design engineering firm. At this time the project appears to be approximately 6 months behind schedule; however, this time may possibly be made up.

Our other program is a 230-kV tieline to Georgia Power. Florida Public Service Commission's approval has been received on need justification. The department of environmental regulation also has given approval. Financing has been arranged. So the anticipated completion date for this line has now been set for July 31, 1982.

Coal oil mixture: Florida Power & Light's test with the coal oil mixture in their Sanford 400-MW plant did not show much encouraging results. Hence, we are doubtful about the success of this program.

Further, this will be a topic to be handled by the recently formed Long-Range Power Supply Task Force, which is still working on this program.

Our last program is the improvement of transmission and distribution systems. Tallahassee still has some 2.4-kV distribution feeders which we are gradually upgrading to 12.5 kV, and also we are upgrading a number of smaller size conductors to large size ones.

This concludes the status report.

I thank you for giving me the opportunity to talk to you this day.

[The prepared statement of Mr. Sharma follows:]

TESTIMONY DURING PANEL HEARING

BY: A.K. SHARMA

REGARDING

CITY OF TALLAHASSEE'S ACTIVITIES

ON

ENERGY CONSERVATION PROGRAMS

Good Morning! My name is A.K. Sharma.

I work for the City of Tallahassee in the Electric Department as the System Planning Engineer.

I was asked to be here today to give you a report on Tallahassee's activities regarding Energy Conservation Programs. For the purpose, I brought along with me and which is enclosed herewith, a report prepared by me last month. This report contains a brief summary of Tallahassee's activities for the second quarter-ending of 1981. The data for the third quarter-ending are under compilation now and are not available.

The Florida Energy Efficiency and Conservation Act of 1980 required City of Tallahassee, along with all other utilities in the State, to prepare an Energy Conservation Plan. This plan was submitted to Florida Public Service Commission and was approved in April, 1981. The following status report refers to the various Conservation Programs included in the said approved plan.

With this much of preface, I will now turn over to my prepared report.

CITY OF TALLAHASSEE

SUMMARY OF ACTIVITIES

REGARDING

IMPLEMENTATION OF ENERGY CONSERVATION PROGRAMS

(DATE OF REPORT: SEPTEMBER 1981)

The following is a summary of activities undertaken in the process of implementing the various programs included in the Energy Conservation Plan adopted by the City of Tallahassee.

This report lists the programs in the same sequence as presented in the original Energy Conservation Plan.

1. Residential Energy Audit Program:

   As of July 31, 1981, the City had received 1,308 requests for energy audits, of which 941 have been completed. No requests for financial assistance or installation assistance have been received. Three post installation inspections have been completed.

2. Alternative Audit Program:

   A total of 149 Class 'B' and Class 'C' audits have been requested, and 67 of these have been completed.

3. Commercial Audits

   In February of 1981 the City completed a Commercial Consumer Survey. During the survey opinions from sample customers were received as regards energy conservation issues through audits. Meanwhile, the Department of Energy initiated a program titled Commercial and Apartment Conservation Service (CACS), however, the final rules for the program are yet to be established.

Moreover, no funds are available to carry out this part of the program.

Under these circumstances, no progress has been made in the Commercial Audits portion of our program. However, the Energy Conservation Committee of the Florida Electric Power Coordinating Group is monitoring the Department of Energy's activities in regards to the CACS.

4. City Buildings Audits:

Subsequent to the adoption of the Conservation Plan by the City, the Electric Department advertised and received proposals from consulting firms to perform the Technical Assistance Analysis for the twenty-three city-owned buildings to be audited.

A local firm was selected, a contract entered into, and presently work in this area is in progress.

A slight delay was encountered due to a revision in the proposed budget for this project, and the revision required approval from the Department of Energy since federal grant money is involved in this project.

5. Consumer Education:

The City's Energy Conservation Section has presented numerous lectures and presentations on this subject. A list of the accomplishments is attached as Attachment 'A'. The Public Service Commission is actively involved in this phase of the program.

Plans are under way for propagating energy conservation messages through higher city officials appearing on local television and through local newspaper articles.

6. Fix-up Program:

This program is mainly centered around "weatherization" of houses owned by low income and economically disadvantaged families. The funds came primarily from federal government grants.

Since May 11, 1981, all work in this program has been halted since funds are no longer available for labor for weatherizations installations. A limited amount of materials is still available, but unless funds are allotted for labor, no additional progress is anticipated in this program.

As of April 31, 1981, approximately 150 houses were weatherized.

7. Water Heater Timers:

8. Water Heater Blankets:

These two programs of the Conservation Plan called for the City to promote the installation of the items and to provide a listing of vendors selling the items.

No large scale promotional program has been launched yet, however, during the course of the home energy audits, the auditors explain to the home-owner the benefits of these two items.

Furthermore, the energy analysts are including these topics in the presentations to the civic groups and clubs as part of the conservation tips.

9. Waste Heat Recovery for Water Heaters:

10. Heat Pumps:

The City is yet to embark upon a full scale program of promoting the above two items. However, the City's Electric Department, from time to time, receives inquiries regarding the beneficial features of the above appliances. The local builders also have been educated on that line whenever an opportunity came by. However, it is felt that due to the high initial cost of these two appliances, unless it is a new construction, most homeowners are not interested in changing over from conventional air conditioning and water heating to the new, more energy efficient methods.

11. Water Flow Restrictors:

The Consumer Service Department completed sending two each of these restrictors to every customer connected to the City's water service. Over and above, establishments like apartment complexes and senior citizen centers, etc., were provided with an extra supply of these devices. Presently, the energy auditors leave behind a couple of these restrictors at every house they complete an audit on and will continue to do so as the supply lasts.

12. Conversion to Natural Gas:

The City's Gas Department is doing its best to lure new customers to its gas system; --the Gas Department proposed monetary incentives to new customers which was rejected by the City Commission. However, the Commission approved a proposal whereby a customer converting a hotwater heater to natural gas can receive a gas tap free of charge. The Commission also approved $25,000 for advertising purposes.

13. Lifeline Rates:

This item was one of the standards covered by the Public Utilities Regulatory Policies Act.

Under a consent order the municipalities left this item for the Florida Public Service Commission to determine its appropriateness. Of late, the Florida Public Service Commission has rejected this standard as not cost based. Therefore, the City also has not pursued this any further.

14. Time of Day Rates: The Florida Public Service Commission recently accepted this PURPA standard as appropriate and thereby giving its green signal for adoption by utilities in the State.

The City of Tallahassee will ask for voluntary participation of customers when we have our two-way load research/load control equipment installed. (Please see Direct Load Control.)

15. Inverted Seasonal Rates:

The City Commission as well as the Florida Public Service Commission rejected this rate.

16. Co-Generation:

On March 24, 1981, the City Commission adopted the City's Co-generation rules which were then submitted to the FERC as required by law. So far no co-generator has come forward with any proposal to be connected to the City's grid system.

17. Solar Plans - Florida Solar Energy Center:

Not much progress has been made on this project.

18. Direct Load Control:

The Electric Department is currently working towards finalizing the specifications of the bi-directional communication equipment necessary for this program.
It should be noted that the same equipment can also be utilized for the Load Research (PURPA), Time of Day Rates, Remote Metering, and other similar functions with very little modification or additions.
The Electric Department has requested $350,000 during 1981/82 budget to implement the initial stage of the program.
In the meantime, FPSC has also approved Load Management Standards as appropriate.

19. Voltage Control During System Peak:

Tallahassee, having an excess generation capability at the present time, did not have to adopt voltage reduction practices yet.

20. Sodium Vapor Lights:

As of June 30, 1981, 946 one hundred watt sodium vapor lights and 45 two hundred fifty watt sodium vapor lights have been installed. Some of these being the conversion from existing mercury vapor streetlights and others were altogether new installations at the requests of customers.

21. Jackson Bluff Hydroelectric Project:

The Construction License Application has been accepted by the FERC for process on this project. The Electric Department has received words through the grapevine that the license may be issued within six to eight months. Negotiations are in progress with the design engineering firm. At this time the project appears to be approximately six months behind schedule--this time may possibly be made up.

22. 230 KV Tie Line to Georgia Power:

FPSC approval has been received on "need" justification. DER also has given approval. Financing has been arranged. The anticipated completion date has now been set for July 31, 1982.

23. Coal Oil Mixture:

Florida Power and Light's test with the coal oil mixture (COM) in their Sanford 400 MW plant did not show much encouraging results. Hence, we are doubtful about the success of this program.

Further, this will be a topic to be handled by the recently formed "Long Range Power Supply Task Force."

24. Improvement of Transmission and Distribution Systems:

During the three month period of April, May and June, 1981, the following were completed:

a. Conversion from 4.16 KV to 12.47 KV

14 units of 15 KVA distribution transformers

28 units of 25 KVA distribution transformers

28 units of 37.5 KVA distribution transformers

19 units of 50 KVA distribution transformers

3 units of 75 distribution transformers

Total KVA converted equals 3,135 KVA

b. Upgrading of feeder conductors:

1.1 miles of 1/0 Aluminum to 4/0 Al

0.8 miles of 2/0 Cu to 477 MCM Al

0.6 miles of #2 Cu to 477 MCM Al

0.4 miles of 1/0 Al to 477 MCM Al

0.6 miles of #4 Al to 477 MCM Al

AKS/bj
9/3/81

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ATTACHMENT A

# PROMOTION OF ENERGY AUDIT PROGRAM

## SPEAKING ENGAGEMENTS

Civic Groups - Completed

Garden Club Annual Meeting
Lady Bug Garden Club
Shrine Club - Ladies Auxiliary
Sunrise Optimist
Tallahassee Optimist
Rotary Club
Statemen Lions Club
Singles Forum
Tallahassee Jaycees
Homemaker's Club
Northside Kiwanis
Lake Jackson Kiwanis
Capital Lions Club
Shrine Club
Northside Lions Club
Civitan Club
Exchange Club

Civic Groups - Future Scheduling *

Pansy Garden Club
Poinsettia Garden Club
Iris Garden Club
Cherokee Garden Club

Home Owners Association - Completed

Lafayette Homeowners
Forest Heights - Holly Hills Homeowners

State Office Buildings - Fletcher Building - Completed

Presented by the City of Tallahassee in conjunction with the Public Service Commission and Governor's Energy Office. Letter of support was signed by Governor Bob Graham authorizing employees to attend these meetings during normal work hours. First session was introduced and supported by Steve Liner, Assistant to Lieutenant Governor Joseph Cresse, Chairman of the Public Service Commission; and Daniel Kleman, City Manager. Sessions are designed to promote the energy audit program and provide education of methods of conserving energy in the home.

State Office Buildings - Future Scheduling

Bryant Building
Larson Building
Hayden Burns Building
Bloxham Building
Caldwell Building
Collins Building
Knott Building
Holland Building
Commonwealth Building
Koger Complex
Winewood Complex
Winewood Towers

Schools - Completed

Florida High - American Society Class
Hartfield School - Third Grade Class

Realty Companies - Completed

Multiple Listing Service Commission Monthly Meeting of Realtors
Bob Teel Community Realty

Financial Institutions - Completed

Barnett Bank Loan Officers

Financial Institutions - Future Scheduling

Bank Administration Institute

WCTV News Interviews announcing availability of audit service
WCTV News coverage and filming of audit in progress at customer's residence
WCTV News update on success of program
WECA News Interview on State Energy Conservation Presentations and Energy Audit Service
WECA News coverage and filming of audit in progress on location
WCTV Anna Johnson "Good Morning Show" announcing availability and content of Energy Audit
WCTV Anna Johnson "Good Morning Show" update on success of program and availability Statewide of the energy audit.
WECA Nettie Sumners "In Person Show" announcing availability and content of Energy Audit
WECA Nettie Sumners "In Person Show" update on success of program and availability statewide of service

Production of four thirty second television Public Service Announcements by Florida State University for distribution to WCTV and WECA.

RADIO PROMOTION - Completed

Public Service Announcements distributed to WGLF, WTAL, WANM, WCVC, WOWD, WKQE.

NEWSPAPER PROMOTION - Completed

Article by William Mansfield promoting the energy audit based on his experience with the City of Tallahassee's energy audit performed on his residence.

Article by Mary Ann Lindsey promoting energy audit based on her experience with the City of Tallahassee's energy audit performed on her residence.

Letter to the Editor by customer Bob Dean promoting the energy audit based on his experience with the City of Tallahassee's energy audit performed on his residence.

MISCELLANEOUS PROMOTION - Completed

Public Service Announcements - Penny Pincher

Signs posted on bulletin boards of Leon County Court House, City of Tallahassee, City Hall, Leon County Public Library, and the State of Florida, Fletcher Office Building.

Return envelope in all utility bills stamped with the reminder to call for an energy audit.

Energy Assistance Meeting - Hosted by the City of Tallahassee's Energy Conservation Office to determine the availability of monies and assistance for low-income residents that could be utilized in conjunction with the energy audit. Attending were representatives of the Community Action Program, the Tallahassee Urban League, Community Improvement, H.R. S. - Home Energy Assistance Program, the Governor's Energy Office, the Public Service Commission. and Planergy, Inc.

MISCELLANEOUS PROMOTION - Future Proposal *

Public Service Announcement - Land and Home Magazine
Public Service Announcement - Tallahassee Federal's lighted sign

* Future scheduling as listed are promotions that are already scheduled for a future date and future proposals are items that have been approved and are currently being worked on.

Mr. FUQUA. Thank you, Mr. Sharma.

Mr. Cresse, you mentioned in your statement the housing programs under the State law that was passed in 1980. How does that work with the nonregulated utilities like the REA and municipals?

Mr. CRESSE. Mr. Chairman, that is the 1981 law that was changed. We had the energy code and the energy code was changed in 1981, and that is the one Mr. Haslam was talking about earlier. It affects all housing in the State of Florida, and the 1980 law which is the Energy Conservation Act also affects all utilities in the State of Florida; so both acts are applicable for every electric utility in the State. The second act is applicable to every house and the first act is applicable to every electric utility.

Mr. FUQUA. You mentioned about $8.5 billion possibly saved. That is about six or seven of our large generating facilities.

Mr. CRESSE. Yes, it is. It is over 6,900 megawatts and they cost a lot of money to build. We have had a law for years requiring utilities to file a 10-year site plan, and the growth of electricity based upon the 10-year site plan, which is a projection based upon the present programs of all the utilities at that time. Electricity growth was going to increase 50 percent in Florida from 1980 through 1990—1979 through 1989, but based upon the goals we established, that cuts that almost in half, and that is the basis of those savings. Now it remains to be seen, of course, whether or not those goals will be accomplished, and the mechanisms of that law on investor-owned utilities are a greater incentive to accomplish those goals, but 85 percent of the electricity in the State is sold by investor-owned utilities and the other governing boards have the same capability to raise the money as provided in that act as investor-owned utilities.

Mr. FUQUA. Mr. Shearer, you mentioned cogeneration and we have been very much committed to and interested in cogeneration for some time, and Mr. Sharma said the city approved procedures for cogeneration, but had no takers as yet. Of course, that is a smaller, more compact area served by the municipal utility here, but in comparison with your company have you had any connection with cogeneration yet or do you anticipate that in the near future?

Mr. SHEARER. Yes, sir, cogeneration to a lot of people means selling a customer on the facility that can sell back to the utility, and I think that is a lot of the trust of the Federal FERCA Act. The Commission has also been very active in making sure the deal works well and encourages that concept, but the real definition of cogeneration, which is the production of electric energy in some other useful form of energy, under that definition we have got about 200 or 300 megawatts of cogeneration on our system.

Our company serves some of the larger industries in the State of Florida, St. Regis Paper Co., and some of the really big ones, and those companies in many cases in most of their applications, traditionally will generate some electricity. It is just natural for them to do that. They have got to have steam to run their processes and it is just very efficient for them to generate some electricity. In the past those companies have generated that electricity and consumed it on-site; in other words, they have not sold it back to our company.

St. Regis, though, is presently just about ready to crank up, and I think the first part of next year they will crank up a new facility they built. And to give you an idea of what they have done there——

Mr. FUQUA. Recovering their own steam?

Mr. SHEARER. Yes, sir; right. And they already had a generating—a powerplant of their own. They were generating for their own uses. They doubled the size of the production in terms of paper at St. Regis and they are becoming completely independent of us. They were about a 13-, 14-megawatt customer, and they will be a zero megawatt customer for us and we will be providing some standby. And, it is my understanding—I might be a little bit premature, but my understanding is that we will be taking some excess power from them to help them in their heat balance and paying them for that power. It is just facilitating the concept.

And I might say that the people who are large scale, large megawatt, large kilowatt hour, potential cogenerators, they really know their process as well. They know how to produce power; they know an awful lot about their internal situation, so we do not run TV advertising or those sorts of things because that is not the appropriate approach to work with those folks, but we traditionally have a lot of it on our system and we see the St. Regis project coming along, and we also are, as I said in my testimony today, in daily contact with those customers. Right now we don't have another major facility on the drawing board but we have been talking with some of them about the possibility.

Mr. FUQUA. Mr. Sharma, you mentioned today hot water heater blankets. Are you advertising that so somebody could write to the utility department and find out how to get a water heater blanket?

Mr. SHARMA. Yes. Our energy office gives presentations to civic groups and association meetings and all that and explain about the use of the water heater blankets.

Mr. FUQUA. How much do they cost?

Mr. SHARMA. About $20, Sears, Roebuck.

Mr. FUQUA. And you save how much over a year's time? Will they pay for themselves in a year?

Mr. SHARMA. I would say it is about $15 to $16 at the present rate of electricity. That depends on the present rate of electricity. If the present rate of electricity is more, then you can save in about 9 months, but ours is about six cents a kilowatt hour at present.

Mr. FUQUA. So it is very cost-effective?

Mr. SHARMA. Very cost-effective. And especially if your water heater is outside in your garage or something like that.

Mr. FUQUA. Mr. Fish.

Mr. FISH. Thank you, Mr. Chairman.

Mr. Cresse, as a gypsy moth, I have listened to solar being run down in Florida, and I expected just the reverse. Now, on page 8 of the PSC's 1981 Annual Energy Activities Report, you say that the passive solar system and active solar water space heating system is not cost-effective in the State of Florida.

Has that statement been confirmed by the Florida Solar Center and the Southern Solar Energy Center?

Mr. CRESSE I think so, but I am not positive about that.

Mr. FISH. Well, you know, this committee has been pushing the research in new energy technolgies, fuel cells, solar thermal, et cetera, and it seems to me that you mentioned yourself the poor financial health of the public utilities, which is true not just for Florida, but for many, many places. Yet since it is in the national interest to develop and use these various technologies, which of them do you think could be most productively used by Florida utilities, and is there anything that the Federal Government can do to facilitate and expedite their use?

Mr. CRESSE. Well, sir, if you can get interest rates down where they belong that would help us considerably in investment of new cost-effective things. That is one of the bases for that particular statement that the cost of investment right now for energy conservation is enormous. I think the incentive program and the rebate program, these tax incentive programs offset some of that high interest cost, and I think it would be more effective, as I mentioned in my closing, if you made a direct rebate out of it.

I also think the Federal Government has the responsibility itself. It is not a State problem but a national problem. Our dependency on foreign oil and research and development cost and efforts to become energy independent ought to be of prime consideration in all Federal activities, whether that is a particular benefit to a particular State or not. It has to be a benefit to the Nation if we can become energy independent. I think any efforts the Federal Government can make in that direction ought to be encouraged.

Mr. FISH. You know that the administration is moving away from direct Federal involvement in research and in direct grant programs. One of the things that we are relying on is the tax credit, and I like what you said about the rebate because we had a trade-off last spring. Those of us who had, like yourself, realized that front-end money was one of the problems in this, favored a solar conservation bank, and the trade-off was the tax credits for solar conservation. First, you have to have the money; second, you do not get your money back until April of the year after you spent it, so I am going to follow up on the rebate idea.

There are two other suggestions in the Congress. One is a doubling from 10 to 20 percent of the industrial energy tax credits for conversion purposes. And second would be a 20-percent energy R. & D. tax credit limited strictly to energy research and development from the private sector. Would you care to comment on those two?

Mr. CRESSE. Let me just say this: I think the industrial community has done a tremendous amount more in energy conservation, large industries and small industries, than Washington. They are cognizant of the fact that energy costs are high now and they are also cognizant of the fact that energy costs are going to increase to the extent that if you can buy something on a cost-effective way for 80 cents on the dollar, which is a 20-percent credit due, it will encourage more people to go into marginal-type efforts. With the credit on R. & D. for energy conservation I am less confident. Simply put, I think that the Federal Government is going to provide R. & D. funds and whether you give a tax credit or appropriations for that, you are in fact providing Federal funds to do it. You are directing efforts through an indirect way.

I think that the tax credit for R. & D. would have a lower priority, in my opinion, than direct Federal research.

One of the problems in Federal direct research is that it appears some has to go everywhere in every State in the Union and that is an awful waste of research dollars in order to accomplish that. That seems to be the major thing. But a more closely monitored directed effort to accomplish certain specific goals, in my opinion, would do more with the Federal tax dollars. You will get all kinds of rinky-dink gimmicks coming out on your Federal tax credit, in my opinion.

Mr. FISH. Thank you.

Mr. FUQUA. Mr. McGrath.

Mr. MCGRATH. Thank you, Mr. Chairman.

In New Jersey now they have a pilot program of about 1,000 homes, and the philosophy behind the program is that 60 percent of what you can save by retrofitting a house or insulating a house or making it energy efficient can be done with a very, very small amount of capital outlay. For instance, things like caulking the windows and doors, weatherstripping the doors, rather than going into the insulation, which is a big ticket item or aluminum siding or things like that.

Now, the utilities in this pilot area are paying for the retrofitting of the houses based on the theory that it is going to lessen the amount of oil that they will have to buy in order to generate electricity. I am wondering—and since it is a pilot project, I don't know how it is going to turn out—how would you think that particular idea would work in Florida?

Mr. CRESSE. We approved a program exactly like it but it is not a pilot program. Florida Power Corp. which serves the lower west coast of this State, is the second largest electric company in the State—I forget the number of customers now, but over one-half million. As a matter of course, as part of their energy conservation program, they will go in and do some of those cheap ticket items: caulking, weatherstripping at their customers' residences.

Mr. MCGRATH. At no cost to the customer?

Mr. CRESSE. There may be a small charge, but it is very minimal, very minimal, and there may be somebody here from Florida Power Corp.—Mr. Jenkins, our director, is here and he can give you more details on that and he can send it to you, but they are using some of the retired people in the area who want something to do to do that kind of work. The people call in and they will go out and do the very things that you are talking about, and it is very cost-effective. I don't think in Florida 60 percent of the possible conservation could be obtained that way, but a substantial portion of it could be obtained.

Mr. MCGRATH. Thank you. That is good news.

I have a resource recovery plant in my district constructed by the Parsons & Whitamore Co. I understand you have one in Florida here, too.

Mr. CRESSE. Yes, sir.

Mr. MCGRATH. I am wondering whether or not you have the same amount of problems with yours that I am having with mine.

Mr. CRESSE. I would have to say no, sir. Yours started up and ran a while and then shut down and it has not operated in over a year.

Ours was never started up because of a disagreement between Dade County, who was the purchaser of that plant, and Parsons & Whitamore, who was the contractor, as to certain agreements. I cannot comment on it too much because Parsons & Whitamore has a petititon in front of this Commission at the present time to declare a facility is entitled to cogenerate and go directly to Florida Power & Light. They are involved in a legal battle, so we have not had the benefit of it operating yet, but I have seen it operate on a demonstration basis.

Mr. MCGRATH. In Franklin, Ohio?

Mr. CRESSE. No, sir; in Dade County, Fla. It is sitting down there ready to go but because of legal arguments between the three parties, it is not cranked up and running.

Incidentally, we have a very high mountain of trash that is causing environmental problems with the water down in that area, and that was one of the reasons it was designed in the first place.

Mr. MCGRATH. Mine has two mountains of trash that are causing immense problems. I am wondering whether the problem might be the same. Maybe there is a dispute beween the county or in my case the local government and the company as to how much the county is going to pay per ton.

Mr. CRESSE You understand the problem, sir, exactly; right.

Mr. MCGRATH. Thank you very much.

Mr. CRESSE. There is one other factor. There is also a dispute as to how much the utility will pay for electricity that is generated. It is an argument over money.

Mr. FUQUA. Thank you very much, Mr. McGrath.

Before I recognize Mr. Nelson, we have to excuse our members so they can go to the airport and probably sit in the Atlanta airport for a while this afternoon. Thank you.

Mr. Nelson.

Mr. NELSON. Thank you, Mr. Chairman. As they are departing, let me tell them they can look forward to enjoying the Atlanta airport probably this afternoon. I just enjoyed it this morning for a considerable delay, and Atlanta is completely socked in.

Mr. Chairman, thank you. It is a pleasure to see these gentlemen and Mr. Cresse. When I had the pleasure of serving in the State legislature, Mr. Cresse was known as the man who ran the entire State of Florida's government, and so I am delighted to have an opportunity to ask him a couple of questions.

Mr. CRESSE. It does seem like old times.

Mr. NELSON. Indeed. What are your goals for reducing the rate of growth in peak power demands and total energy consumption? How were those goals set?

Mr. CRESSE. We established the task force on the passage of that law to develop an energy fact book. Of course, until that point in time, most of us at the public service commission were trying to learn the difference between rate base and base rates because we were new at that particular activity. But we established a task force of staff professionals within the public service commission to first determine what was possible There is a dirth of information but there is a lot of opinion. There was a dirth of facts about what is possible.

We developed an energy fact book which was the usual thickness of a background piece of material, and relied very heavily on Mr. Joe Jenkins, our director of the electric and gas department, for what was possible to be accomplished if a certain market penetration were achieved.

We concentrated primarily on the area of water heating, air-conditioning and heat because those are the areas of great consumption and great contributors to the people. We found through our studies that insulation would save a certain amount if you had it, and if you did not have an adequate amount, it would save less, but there is a point at which it does not become cost-effective.

When we came out with those data we held weeks—seems like weeks, of hearings on what you could do and what could be accomplished, and then we had the economists and market people come in and talk and criticize. If this could be accomplished, how long would it take, and we heard more about the S-curve than we ever wanted to hear because you do not just start tomorrow and penetrate a market 100 percent.

So I guess after the input from everybody that was involved, the utilities directors and the conservationists and the DER, ourselves, our own staff, and some out-of-State experts, through that hearing process we developed those goals.

Mr. NELSON. In looking at your table on page 3 of your testimony, I notice that you actually in 1979 had more peak kilowatts in the winter than in the summer.

Mr. CRESSE. Yes, sir.

Mr. NELSON. I would have thought it was the reverse because of the heavy use of air-conditioning in Florida.

Mr. CRESSE. Yes, sir, but there has been a heavy use of strip heat in the State of Florida. Strip heat refers to resistant heat which was a mode of installation in the State of Florida, I guess, in the late sixties and all through the seventies. It is a very, very inefficient use of electricity. It is also a very, very cheap method of installing heat. The initial installation cost is very minimal. At the time those decisions were being made, they were probably cost-effective, but the embargo and so forth which raised the price of fuel has—we have a winter peak. We are a winter peaking State and that's unusual, but it is for a very short period of time and it is because of the very heavy demands of resistant heating for housing.

Mr. NELSON. How did you come up with the percentage of 72.25 percent of the projected rate of growth as your goal for the rate of growth in peak power over the next decade?

Mr. CRESSE. The data indicated, based upon the percentage that was in fact being wasted now that we could operate cost-effectively, that about between 30 and 40 percent of the electricity presently being used could be conserved with cost-effective measures.

Then you apply that particular end result goal into a marketing scheme over time, and we felt like there were two things that we wanted to accomplish. We first started out with 85 percent, 85 percent was our first goal on reduction in kilowatt hours, but we wanted the reduction in peak to be greater than the reduction in kilowatt hours because the peak is what drives our construction

program, and we inserted a 25-percent reduction in oil consumption in specific terms so there was not any question about that.

Mr. NELSON. How did you reach that——

Mr. CRESSE. It was somewhat arbitrarily chosen.

Mr. NELSON. I see.

Mr. CRESSE. It was not scientific at all.

Mr. NELSON. If we don't have any more construction of an oil generating facility and yet we are still meeting our future electricity demands by constructing other kinds of fired plants such as coal or nuclear, over the next decade would you not have a reduction by more than 25 percent?

Mr. CRESSE. No, sir. We are approving the construction of some coal fired plants now; we have approved three since 1980, a total of 1,900 megawatt hours because it is now more economic because of the difference between the price of oil and the price of coal to in fact build plants specifically to replace oil.

The long-range projections are that in the latter part of this decade coal prices for fuel will be something like 4½ cents of coal per kilowatt hour and oil will be something like 9 cents. That is not true today, but those are the projections, so we will accomplish that.

In fact, the projections are if we don't build the plants and the goals are met, I don't think we would be able to produce the 25-percent reduction in dependency on foreign oil.

Mr. NELSON. I think what I am trying to get at with my question is that you have stated that the goal over the next decade is to reduce the use of oil as a generating fuel by 25 percent.

Mr. CRESSE. Yes, sir.

Mr. NELSON. And if you are not going to approve over the next decade to 1989, any new oil fired plants; rather if, all new plants coming on line are going to be fired by some other kind of fuel; coal, perhaps some nuclear, then my question is would that not have you even surpass your goal of reduction of oil by 25 percent?

Mr. CRESSE. Not based upon the forecast we used when we established that goal.

Mr. NELSON. OK.

Mr. CRESSE. Now that's an arguable statement there. Some folks say that that will happen anyway, because of pure economics, but based upon the long-range forecast, we are over 54 percent oil right now, and we are not talking about reducing that percentage by 25 percent.

Mr. NELSON. Right.

Mr. CRESSE. We are talking about reducing it in total gallons by 25 percent, so the projections were no, that would not be accomplished automatically.

Mr. NELSON. Would that reduction of barrels of oil meet what had originally been set in Washington as a guideline for oil conservation among the electric utilities?

Mr. CRESSE. I frankly don't know, sir.

Mr. NELSON. I had heard somewhere the figure that Florida was given a goal of reducing in half——

Mr. Chairman, do you know the answer to that?

Mr. FUQUA. It seems to me that that is where the 25-percent number came from.

Mr. NELSON. I thought it was much higher than that but I could be mistaken.

All right. Let me just ask a few quick questions, Mr. Chairman. On page 3 what do you mean as a goal of integrating nontraditional sources of power into utility service areas?

Mr. CREESE. Cogeneration.

Mr. NELSON. Oh, cogeneration, I see. Nontraditional sources of power. That is what you mean by cogeneration?

Mr. CRESSE. Yes, sir, and there has been very little cogeneration in the State of Florida, and in addition to that, of course, we would like to encourage solar to the extent it is costeffective. That was traditional in the thirties in Florida. It got out of popularity in the forties and fifties. Generally, anything that we can do to eliminate the use of electricity that is cost-effective would fall into that category. The two big items are cogeneration and solar.

Mr. NELSON. OK. A final question. Which of the utility conservation programs here seem to be achieving the highest response rate?

Mr. CRESSE. Well, I won't be able to answer that question very clearly until after we have our December hearings. These programs just started in the early part of this year. The goals were established in December, programs were submitted in January, maybe a little bit before that, but they really kicked off in April of this year.

We have a 6-month review. After the completion of every 6 months we review what takes place, what results are accomplished and so forth, so I won't really know until we get into the review which is scheduled on November 22.

The one that people are talking about the most that is getting the greatest results, the greatest market penetration is the rebate program for high efficiency air-conditioners and heating. It seems that most of the utilities have that particular kind of incentive program to get home builders to put in those more efficient products. They are paying $300 to $350 as opposed to some alternative. That seems to be involved and is getting great results. Of course, with the 1981 law implemented, we will have to go beyond what the law requires, since that law was substituted for these rebate programs. Right now there is a lot of inefficient equipment being installed in houses and that program is heading it off very well.

Beyond that, sir, I really don't have any report that I can make at this time.

Mr. FUQUA. Thank you, Mr. Cresse.

Mr. CRESSE. Thank you, Mr. Chairman.

Mr. FUQUA. Thank you, Mr. Creese, Mr. Shearer, and Mr. Sharma. We thank you very much. You have been very helpful.

Our next panel of witnesses will be Mr. Kinney Harley, the legislative council for the Florida Home Builders; Dr. Wayne Smith, director for the Center for Environmental Studies at the University of Florida; and Ronald Graf, vice president and general manager of Conserv-Phibro Corp.

We will start with you, Mr. Harley.

**STATEMENTS OF KINNEY HARLEY, LEGISLATIVE COUNCIL FOR THE FLORIDA HOME BUILDERS; DR. WAYNE SMITH, DIRECTOR, CENTER FOR ENVIRONMENTAL STUDIES, UNIVERSITY OF FLORIDA; AND RONALD GRAF, VICE PRESIDENT AND GENERAL MANAGER, CONSERV-PHIBRO CORP.**

Mr. HARLEY. Thank you, Mr. Chairman, and distinguished members of the committee. You have a copy of my testimony.

Mr. FUQUA. Yes, we will make that part of the record.

Mr. HARLEY. Fine. Thank you very much.

I have a problem with my throat here; I am trying to catch a cold, one of these good old Florida colds, so I am going to cut my remarks very short. However, there are four or five additional points I would like to make.

No. 1, you probably heard more than you wanted to hear about the Florida Model Energy Code, and it is in my testimony also, so I will not repeat. The important point is that the Florida Model Energy Code is working because everybody had a part in it. It is a quality product made up of industry, practitioners out in the field, legislators, regulators, and everybody concerned has really had an input and continues to have input. We are constantly upgrading it.

We are in hearings right now on that model energy code seeking to upgrade it. The reason it works is because of that total input. The PSC, department of veteran and community affairs, the Senate, and the House and their committees, the energy office, the industry as such, and the practitioners, the guys out in the field, plus the utilities are all working constantly to do that.

We still have one big problem to solve and it is a mutual problem, and that is how do we get a hold of the existing structures.

We add about 3 percent, 4 percent of new products, new housing units, new structures to the market each year, but that does not address the 96 percent, the 97 percent of units that are existing, and one of the major sources—contrary to a lot of the testimony you have heard today—one of the major users of electric energy is plug-in appliances. Until we can find some way to control that plug-in appliance, that hair dryer that all of us use, the other plug-ins—the 110 volt appliances are terribly energy inefficient—we will waste a lot of energy.

Until we can get some kind of handle on that, I'm afraid we are really not going to get much of a grip on the great bulk of the energy inefficiency that exists in our country. The new structures that are being built are built under the Model Energy Code, they are coming in on the points—an ever decreasing number of points, and we are constantly keeping our guys and our members and through the peer pressure of the other members of the industry, to bring those in at an even lower EPI rate, so it is a constant pressure and it is a good market pressure, too.

It is not just because we are such good guys and wearing white hats and all that, but the marketplace is dictating, life-style is dictating that we continue to produce a product, deliver a product that is energy efficient and produces lower electricity cost for utility bills on a monthly basis, so we are just responding to a market demand and I think that will always be the case.

In conclusion, let me suggest just one more thing, and that is there has been a lot of testimony here today on how to spend money. Let me give you one suggestion on how to save money. Finally, dispose of a program that has been discredited time after time after time, that is the BEPS that the Federal Government keeps on talking about, wrestling with and everything else. Put that rascal to bed and forget about it because I think all of your States like Florida, the heat-gain States, are doing their job, the heat-loss States are doing their job, and I think on the energy conservation, when the Federal Government set the policies, the States carried them out. The industry is going to produce it and the public is going to demand it, and I think that is where the whole thing is and that is the way it should be.

I would be happy to answer any questions, Mr. Chairman, and I appreciate the opportunity of being here.

[The prepared statement of Mr. Harley follows:]

PRESENTATION BY

KINNEY S. HARLEY

LEGISLATIVE COUNSEL

FLORIDA HOME BUILDERS ASSOCIATION

12,500 corporate members located throughout Florida, have been deeply involved in the struggle for energy conservation for several years. Originally through its national affiliate, the National Association of Home Builders, the Florida Home Builders Association helped develop the publication and schematic program for energy efficient construction techniques and then produced for, distributed to, and educated our membership in Florida and throughout the United States to the fact that energy conservation is good business.

That original publication by this Association back in the early seventies began the education of this industry as to energy conservation that continues to this day. Over the years we, and NAHB, have published and distributed information as to the use of techniques and materials to conserve energy. Some examples would be the series of "how to" books such as use of insulation, weather stripping, construction techniques, use of materials, relative values of product energy efficiency, etc. All of these were written and used long before the national crisis in energy began. Our original concern was to build a better house. This is still our concern.

Beginning in the 1977 Florida Legislative Session and almost each year since that time we have upgraded our energy awareness to the point where Florida is now the national leader in the adoption of a code to guide construction and construction practices designed to conserve energy resources. This did not come easily.

I am sure you are aware that new rules and regulations, new codes, new techniques are not easily sold to this industry - or to any industry. But because of the awareness and sensitivity of the leadership of this industry, we convinced our peers that energy conservation and energy awareness are matters of overriding public interest and therefore, we, the home building industry, should take the lead. I am proud that we have done so.

In 1977 we enacted our first energy requirements, in 1978 we upgraded them, again in 1979 and in 1980 and in 1981, with the help of the Governor's Energy Office, the Department of Veterans' and Community Affairs, and the Public Service Commission, we succeeded in helping the Legislature put the Florida Model Energy Code on the books.

Florida being a "heat gain" state, has particular problems not shared with other "heat loss" states. We found that codes adaptable to their climate and use did not work in Florida. Where a code addressed the principal issue of how to guard against cold, air infiltration and heat loss in northeastern states, Florida's problem was how to get rid of excessive heat and humidity. With this in mind we found, once we really started to get into this entire matter, Florida had to prepare a set of guidelines and principles peculiar only to Florida.

Other problems were also addressed as we, the industry, the various governmental agencies and the private consultants who actually wrote the Florida Model Energy Code, proceeded. For instance, where and how would a builder get all the information required to build an energy efficient home. What learning process would be required to insure that the most effective materials were to be employed? These and other considerations were important to the process. Both government and industry had to forge a partnership to bring about these very desirable results.

What finally was devised was a system, a code, a process whereby an ordinary builder could sit down and with a minimum of effort, and no additional reference material whatsoever, calculate the energy efficiency, or non-efficiency of a home he was planning to construct. More importantly, he could visually depict the compilation of the "points" he was totalling for each item he planned to use in the construction and also see where, by the use of different material;

different model; different thickness; different orientation, he could make his construction more energy efficient. The system utilized in the Florida Model Code is what we lovingly call the "income tax form" approach, and, unlike the IRS Form 1040, is easy to understand and to complete.

Don't misunderstand, the Florida Model Energy Code is not a perfect document by any means, but, the important thing is that we have the process in such a state that requires an annual update of the Code to address the cost effectiveness and availability of new efficient equipment. The Department of Veterans' and Community Affairs is charged with this responsibility.

Back to the "point" system for a minute. This system is universally understood by everyone including the public due to an intensive effort by state government to inform our citizens what these "points" are all about. It's really working.

In conclusion, what I've been saying is that we have been working at this matter of energy conservation. We have put forth our best efforts in producing a schematic that works. We have a system in place that places burdens on government and industry alike continually to be cost effective and responsible. What we here in Florida must continuously be on guard against is laxness or overzealousness - either extreme - that could upset this, up to now, harmonious relationship that, in fact, is producing results.

Mr. Fuqua, members of the committee, I urge you to recognize Florida's efforts. I urge you to help tell our story to others in other states that voluntary action, cooperative action is the best approach.

I also urge you to finally put an end to the Building Energy Performance Standards proposal at the federal level. We just plain don't need another player in an already crowded field

Thank you for your time.

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BIOGRAPHY

Kinney S. Harley

Kinney S. Harley, the Legislative Counsel of the Florida Home Builders Association, has been involved in trade association management since 1959. He began his career in this field as the Executive Director of the Home Builders Association of Chattanooga, Tennessee and has also managed the Sales and Marketing Executives of Tallahassee, the Home Builders Association of Tennessee and the Florida Home Builders Associaiton since 1965.

Harley is the chief lobbyist for FHBA and the principal spokesman for the residential construction industry in Florida. He represents a total membership of 12,000 members comprised of approximately 300,000 workers.

As the Legislative Counsel, he serves on many state and national councils that affect the home building and residential construction industry.

He is a licensed general contractor and makes his home in Tallahassee, Florida with his wife Betty and three children.

Affiliated Associations

HBA Brevard County
HBA Citrus County
Daytona Beach HBA
Five County B&CA
Florida Atlantic BA
HBA Gainesville
HBA Hernando
BA Highlands County
HBA Lake County
HBA Marion County
HBA Mid Florida
Northeast Florida BA
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HB&CA Palm Beach Co
Panama City Bay Co. HBA
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Tallahassee BA
HBA Greater Tampa
Treasure Coast BA
Tri County HBA
HBA West Florida
HBA West Volusia

Mr. FUQUA. At this time we will be happy to hear from Dr. Wayne Smith.

Dr. SMITH. Mr. Chairman, members of the committee, at your instructions I will summarize this and let the statement stand for the record. However, I would like the opportunity to make one slight amendment to that record. I am with the Institute of Food and Agricultural Sciences and in that role we have concerns with energy, especially supplying energy and the efficient use by farmers, homeowners and businesses in Florida.

Our interests stem from the fact that almost all of our activities have been based upon the assumption that our energy supply would remain cheap and abundant and never run out. However, we know that that no longer holds and within the next several years we have some different strategies which we must employ, one of which is conservation and the other is developing fuels that could help provide relief for the situation here in Florida.

I would like to just signal two points that are discussed in my written testimony for your consideration, and one of those is the Energy Conservation and Production Act of 1976. We have enjoyed a nice cooperative relationship with the Governor's Energy Office in implementing some provisions in that act, and because of it we have been able to develop conservation education programs that have thus far led to measurable—and when I say "measurable," I mean hundreds of thousands of barrels of oil in energy savings on an annual basis in Florida agriculture.

The other Act I would like to signal for you is the Energy Extension Service Act in 1977 on which we also worked with the Governor's Energy Office in the implementation. The program has recently been formed so only the development and implementation phase are complete. Thus, it has not progressed to the point that measurable energy savings are identifiable at this point. But we are very optimistic that it will similarly have a very favorable conservation effect on the hospitality, transportation, agriculture, and the building construction industries of Florida.

Finally, I would like to mention to you that we believe that you and the committee and related committees should give very serious consideration to the research and development needs in the area of renewable energy. We assert that renewables will be diverse and will not be centralized, but, there should be a strong national program.

For example, we recognize here in Florida that wind energy will probably play a very minor role. But it is important to certain portions of this country—in the Midwest, California, and Hawaii. Similarly, we believe that OTEC and biomass sources of energy may have a significant impact in Florida's energy picture, and we urge you in your activities to consider these renewable energy forms and the research and development needs for them.

I seldom turn down the opportunity to point out, however, that while biomass and related energy sources were very prominent in our past, they are not exactly as adaptable as some might think. The plant materials that we have today were developed for other purposes: food, feed, fiber and not for fuel. Similarly, the conversion technologies we have to use today were developed for other purposes, namely the spirits and other industries. We assert that

energy crops can be developed for biofuels by using the same type of scientific methods that led to our food crop. Appropriate crops for energy and the conversion technologies to make them useful are not readily available and applicable today.

Finally, I would like to point out to you that the University of Florida, a land grant institution, has a long history of research and education programs to develop new technology and translate it to useable form so citizens and consumers can use it, and we stand ready to assist whenever possible by addressing some of the problems relating to the energy situation.

Thank you very much for the opportunity to make these points with you, Mr. Chairman.

[The prepared statement of Dr. Smith follows:]

Testimony for
Subcommittee on Energy Development and Applications
October 26, 1981, Tallahassee, Florida
Subject: Energy Efficiency in Florida's Future

Mr. Chairman, my name is Wayne H. Smith and I am Director of two interdisciplinary centers in the Institute of Food and Agricultural Sciences (IFAS), University of Florida; these are for Environmental and Natual Resources Programs and Biomass Energy Systems. Both centers have programmatic concerns with energy, especially its supply and efficient use by farmers, growers, and homeowners.

Almost all facets of our society, whether industrial producer or citizen consumer, have developed on a base of cheap, abundant energy and without a thought that the energy supply would become limiting. Today we fully realize that the energy supply, as we know it, is finite and could run out. While we are aware of new sources (such as advanced nuclear technologies; biomass; and new solar technologies such as photovoltaics, ocean thermal, and others), it is clear that these will not significantly impact the usable energy supply in the next several years. Several recent studies have shown that a conserved barrel of oil is cheaper than a new barrel from any conventional energy supply. Thus, in the near term, energy conservation is a most important pursuit.

Energy conservation has already had a significant effect on the American energy situation and substantial further impact is possible. It is reported that energy use in the U.S.A. is growing much more slowly than is the Gross National Product. One estimate has placed energy use to be down by 20 percent in terms of expected consumption. By gradual incorporation of technological advances and with some knowledge of alternatives, only minor life style changes have been necessary. Were it not for significant improved energy use efficiencies and reduced U.S. energy consumption, the impact of the loss of Iranian oil would have been more serious and the grip of OPEC much tighter. But instead of a growing crisis, the trend is for a reversal, and today there exists a temporary "oil glut" which buys us time for developing new energy conservation strategies.

Energy from a physical science perspective is complex; so is its role in society and its functions in industry, transportion, agriculture, and other activities. This complexity makes it difficult to get rapid, effective adoption of the new technologies and practices now available to achieve energy conservation. For research results on energy conservation to be effective, the consumer must be made aware of them and educated on how to incorporate new developments into their home or business.

The Congress has enacted several energy conservation acts that have supported conservation programs within the states. I wish to comment on two of these:

1) State Energy Conservation Program
2) Energy Extension Service (EES)

The Institute of Food and Agricultural Sciences as a performing arm of the State of Florida has enjoyed a cooperative relationship with the Florida Governor's Energy Office, the administrative management arm for the state. Receiving fiscal support for startup energy education programs as a part of the state's energy conservation program has been helpful in being responsive to citizen needs. This has been especially important since no special funds were appropriated for energy education through the Cooperative Extension Service coordinated by the USDA. Significant programs that we were able to initiate in cooperation with the State Energy Conservation Program include:

1) Florida Energy and You. A study to determine attitudes and practices of Florida citizens so that energy education programs could be tailored to meet their needs.
2) Energy use survey in Florida's major agricultural crop (citrus) to determine energy use and conservation opportunities. The resulting program on conservation practices for citrus growers has led to savings of several hundred thousands of barrels of oil each year.
3) Landscaping to conserve energy has identified plant material for each Florida region, and landscape designs have been communicated so that Florida homeowners can use vegetation to screen out the sun's heat. These measures have been combined with others and a User-Oriented Computer Model has been developed to individualize information to the

consumer so that economic and energy savings can be identified in dollars or familiar energy units.

4) Irrigation and freeze protection computer models have been developed so that farmers can predict when to apply water or freeze protection and waste is prevented. Depending on site specific measures, these have led to saving of oil measured in the hundreds of thousands of barrels per year.

To use newly developed energy practices or to make wise uses of the array of options available, citizens must possess adequate knowledge. With knowledge and understanding, energy users can make choices and apply new developments with the motivation provided by economic forces.

Congress recognized this specific need in 1977 with the passage of the Energy Extension Service Act of 1977. That program has just now reached full development in spite of budget reductions and the uncertainty of funding from year to year. The intent of the EES program was and is to educate the end user to new opportunities for reducing energy use and operating costs. Only the surface has been scratched in this important area, and it will be a great setback to lose this important function in addressing future energy needs.

Programs and policies developed through the Florida Legislature and the Energy Office have emphasized energy conservation. The programs have addressed major opportunities for energy savings within key economic areas of the state, including the hospitality industry, transportation, agriculture and building construction.

The Model Energy Efficiency Code for building construction, an important new policy, initiated mandatory energy efficiency levels for new construction. This new code, coupled with the building construction program of the EES, is already making major efficiency gains in new buildings. The EES provides education programs to builders and realtors to help them understand and incorporate these code requirements. Many, in fact, most conservation techniques can be incorporated into the construction of a new home with very modest additional cost, if any. By getting an earlier start (not waiting for the market place to demand it), new construction in the State of Florida will be far more energy efficient that otherwise expected for years in the future.

The limited production of oil and gas from land areas in Florida means that greater initiatives in conservation will be essential to cope with rising energy costs and potential reduction in supply of imported fuels. Thus, it appears wise for Florida to continue its conservation initiatives developed through extension education. The education program of the Florida Energy Extension Service is addressing the major economic sectors within the state in the nine most populous counties. This program needs to be expanded to all 67 counties. Appropriated funds from the state for both research and and extension education programs related to low energy technologies for Florida's agriculture have allowed a start in these program areas by the Cooperative Extension Service. Expansion of these programs could bring greater savings to Florida consumers.

If the U.S. Department of Energy (DOE) is dismantled as proposed by the President, there are several programs that should and can be efficiently administered through other federal agencies. For example, the Energy Extension Service could be efficiently administered through the existing Federal Extension Service of the USDA. The existing facilities and network of Extension could be efficiently utilized to deliver energy conservation educational programs directly to the public.

Many research and development programs are just now reaching the point where the concepts have been proven and are acceptable for widespread use. These new concepts will gradually make very significant contributions to improvements in energy efficiency. In other words, most organizations, businesses, individuals, and utilities are just now at the point of taking advantage of new developments. Thus, it would be a great loss if energy extension education programs were discontinued.

One example of such a research and development program is in agriculture. Since 1978, overall farming sector energy input prices have increased 135 percent while all other input prices increased 55 percent; farm product prices rose only 22 percent during the same period. One of the many ways an agriculturalist can mitigate this problem is to take advantage of new conservation opportunities from institutional changes and scientific advancements. Time-of-use pricing, now available on a voluntary basis in Florida by Public Service Commission action, is one such opportunity available to farmers.

To determine the applicability requires careful analysis of many factors and, finally, the development of an educational program to assure adoption by those who can benefit.

In conclusion, we see many opportunities for all citizens and businesses to make significant energy savings through conservation. To accomplish these savings, coordinated research and education programs designed to provide rapid, effective transfer of new knowledge to consumers must be effected. Land-grant universities, such as the University of Florida, have been effective in carrying out such programs. This system of research and education can also assist with the energy problems faced by Floridians and we in IFAS at the University of Florida stand ready to assist. We believe significant additional energy conservation (about 20 percent) is possible through a focused comprehensive program.

Thank you for the opportunity to address you on this important subject.

WAYNE H. SMITH
2903 S.W. 4th Court
Gainesville, FL 32601

BIOGRAPHICAL SKETCH

Schooling: University of Florida, BSA in Agronomy, 1960; Mississippi State University, MS in Soils-Forestry in 1962 and PhD in Forest Soils (with minors in Chemistry & Plant Physiology) in 1965; Oak Ridge Associated Universities, Radiobotany in 1966.

Place of employment: Institute of Food and Agricultural Sciences
University of Florida, Gainesville 32611
Telephone: 904 392-1511

Work experience:

1968 to Present

June 1980 to Present - Director, Center for Biomass Energy Systems, Institute of Food and Agricultural Sciences, University of Florida.

August 1973 to Present - Director, Center for Environmental and Natural Resources Programs, Institute of Food and Agricultural Sciences, University of Florida.

April 1978 to 1980 - Principal Investigator, Biomass and Chemicals from Woody Plants in Florida. Department of Energy funded.

July 1976 to August 1978 - Assistant Director for Forestry (Management, Biology, and Products) and Professor for Forest Nutrition, School of Forest Resources and Conservation (SFRC), University of Florida.

February 1976 to 1979 - Co-Leader of the Intensive Management Practices Assessment Center (IMPAC), a US Forest Service - University of Florida - Forest Industry research program to study the effects of intensive management on multiple forest values.

1968 to 1977 - Co-Coordinator of the Cooperative Research in Forest Fertilization Program (CRIFF), a University of Florida - forest industry research program which studies soil, plant relations as they relate to forest fertilization.

Published Papers: Refereed, 35; other, 36.

As Director of the Centers for Environmental and Natural Resources Programs and Biomass Energy Systems, I have responsibility for research and education program development, planning and coordination. Key areas concern waste management, non-point source pollution, biological control of pests, and related subjects in the former Center. The Biomass Center is concerned with production, conversion and product utilization from energy crops.

Mr. FUQUA. Thank you, Dr. Smith.

Mr. GRAF. Thank you, Mr. Chairman.

My name is Ronald Graf and I am vice president and general manager of Conserv, a department of Philipp Brothers, a Division of Phibro Corp. Conserv is a manufacturer of high analysis phosphate fertilizer materials located near Lakeland, Fla., in the heart of the Nation's largest phosphate reserves.

I appreciate the opportunity to address your committee today on the subject of cogeneration and touch upon the major contribution the Florida phosphate industry can make, not only to the conservation of energy but the production of energy without a government grant. The advent of the Public Utility Regulatory Policy Act passed by Congress in 1978 commonly called PURPA, followed by the Florida PSC rule 9970 permitted the company I represent and will possibly permit Florida's third largest industry, the phosphate industry, to make a significant contribution to the conservation of energy through the conversion of waste heat and electrical power.

Sections 201 and 210 of PURPA deal primarily with the requirement that a utility purchase electricity produced by a cogenerator from waste heat or heat derived from energy sources such as biomass, waste, and renewable sources. This was of particular importance to Florida, which ranked seventh in the United States in electrical energy consumption and is almost totally dependent upon high-cost fuels from other States or from overseas.

Less than 14 percent of the fossil fuel used by Florida utilities is produced in the State primarily from the Jay Field in the Panhandle, and this field's capacity is diminishing. This is truly an enigma. The phosphate industry now has the capability to produce from phosphate mining in Forida more than enough uranium to supply all of the energy required for the State's 90 billion kilowatt annual demand if it had more nuclear powerplants.

Floridians from Jacksonville to Sarasota literally stand on the lowest cost utility fuel source in the United States, at one-third the cost of coal, one-sixth the cost of oil.

In the phosphate industry, production of high analysis phosphatic fertilizers is accomplished by the digestion of phosphate rock into sulfuric acid.

Florida is not only the largest producer of phosphatic fertilizing material, it is also the largest producer of sulfuric acid in the world. The manufacture of sulfuric acid involves the burning of sulfur in the presence of air to produce sulfur dioxide gas which is oxidized to sulfur trioxide in the presence of vanadium catalyst and then absorbed in sulfuric acid.

The process is heat producing or exothermic in nature. The oxidation of sulfur to $SO_2$ and $SO_3$ releases 36 percent of the heat produced by crude oil. However, in the sulfuric acid process it is necessary to remove a major portion of the heat from the reaction to permit further oxidation of the gas. This is usually accomplished with heat recovery equipment such as economizers, boilers, superheaters, or gas to gas heat exchangers. Most of that equipment converts the waste heat to steam, which has historically been used to operate blowers and to heat and concentrate phosphoric acid.

Two years ago the chemical complex I am responsible for recognized the need to replace two of its sulfuric acid plants due to their

age and overall efficiency. The most current design of sulfuric acid plant then available provided highly efficient conversion of sulfur to sulfuric acid but did nothing to improve upon waste heat recovery and utilization of that energy as electricity.

Subsequent lengthy meetings with one of the world's leading design constructors of sulfuric acid plants led to breaking ground at Conserv last month for the erection of a first-of-its-kind high-energy-efficient sulfuric acid plant. It should be on stream by September 1982.

This plant incorporates design and equipment resulting in a 30-percent increase in recovered energy permitting the installation of a turbo generator which will supply 13 megawatts of electricity to the connecting utility and still supply steam for the operation of other plant processes in the chemical complex at Conserv.

In one of the first such cogeneration agreements in the state Conserv will sell all of its generated power to the utility and will further conserve on energy consumption by buying interruptible power for all of its complex except the new sulfuric acid plant. The electricity sold to the utility is sufficient for 8,000 homes or a city the size of Mulberry or Dade City.

Florida's phosphate industry, as I said previously, produces more sulfuric acid than any other place in the world. If its 17 million ton-per-year acid production capability could be utilized for cogeneration, a potential 200 to 300 megawatt electrical energy capability exists.

A powerplant of this size would cost in the neighborhood of $360 million to $502 million. The ability of a utility to defer into the future an expenditure of that magnitude would result in a significant and highly desirable delay in that utility's financing requirements for new construction, and, of course, in the price we all pay for power.

Thank you.

[The prepared statement and biographical sketch of Mr. Graf follow:]

PRESENTATION TO SUBCOMMITTEE ON ENERGY DEVELOPMENT AND APPLICATIONS HEARING ON "ENERGY EFFICIENCY IN FLORIDA'S FUTURE" - DON FUQUA, CHAIRMAN

## "COGENERATION"

THE ADVENT OF THE "PUBLIC UTILITY REGULATORY POLICIES ACT" PASSED BY CONGRESS IN 1978 COMMONLY CALLED "PURPA" FOLLOWED BY THE FLORIDA PSC RULE 9970 IN 1981 PERMITTED THE COMPANY I REPRESENT AND WILL POSSIBLY PERMIT FLORIDA'S THIRD LARGEST INDUSTRY, THE PHOSPHATE INDUSTRY, TO MAKE A SIGNIFICANT CONTRIBUTION TO THE CONSERVATION OF ENERGY THROUGH THE CONVERSION OF WASTE HEAT INTO ELECTRICAL POWER.

SECTIONS 201 AND 210 OF "PURPA" DEAL PRIMARILY WITH THE REQUIREMENT THAT A UTILITY PURCHASE ELECTRICITY PRODUCED BY A COGENERATOR FROM WASTE HEAT OR HEAT DERIVED FROM ENERGY SOURCES SUCH AS BIOMASS, WASTE, AND RENEWABLE RESOURCES.

THIS IS OF PARTICULAR IMPORTANCE TO FLORIDA WHICH RANKS 7TH IN THE U.S. IN ELECTRICAL ENERGY CONSUMPTION AND IS ALMOST TOTALLY DEPENDENT UPON HIGH COST FUEL FROM OTHER STATES OR FROM OVERSEAS. LESS THAN 14% OF THE FUEL USED BY FLORIDA UTILITIES IS PRODUCED IN THE STATE, PRIMARILY FROM THE JAY FIELD IN THE PANHANDLE, AND THIS FIELD'S CAPACITY IS DIMINISHING.

THIS IS TRULY AN ENIGMA. THE PHOSPHATE INDUSTRY NOW HAS THE CAPABILITY TO PRODUCE FROM PHOSPHATE MINED IN FLORIDA MORE THAN ENOUGH URANIUM TO SUPPLY ALL OF THE ENERGY REQUIRED FOR THE STATE'S 90 BILLION KWH ANNUAL DEMAND IF IT HAD NUCLEAR POWER PLANTS.

HOW TRAGIC THAT THIS NATION HAS ALLOWED THE THREE MILE ISLAND INCIDENT TO PERMIT IT TO FALL BEHIND WESTERN EUROPE AND JAPAN IN THE CONSTRUCTION OF NUCLEAR POWER PLANTS WITH FUEL COSTS 1/3 OF COAL AND 1/6 OF OIL.

IN THE PHOSPHATE INDUSTRY THE PRODUCTION OF HIGH ANALYSIS PHOSPHATIC FERTILIZERS IS ACCOMPLISHED BY THE DIGESTION OF PHOSPHATE ROCK BY SULFURIC ACID.

FLORIDA IS NOT ONLY THE LARGEST PRODUCER OF PHOSPHATIC FERTILIZER MATERIALS, IT IS ALSO THE LARGEST PRODUCER OF SULFURIC ACID IN THE WORLD.

THE MANUFACTURE OF SULFURIC ACID INVOLVES THE BURNING OF SULFUR IN THE PRESENCE OF AIR TO PRODUCE SULFUR DIOXIDE GAS WHICH IS OXIDIZED TO SULFUR TRIOXIDE IN THE PRESENCE OF VANADIUM CATALYST AND THEN ABSORBED IN SULFURIC ACID.

THE PROCESS IS HEAT PRODUCING OR EXOTHERMIC IN NATURE. THE OXIDATION OF SULFUR TO $SO_2$ AND $SO_3$ RELEASES 36% OF THE HEAT PRODUCED BY CRUDE OIL. HOWEVER, IN THE SULFURIC ACID PROCESS IT IS NECESSARY TO REMOVE A MAJOR PORTION OF THE HEAT FROM THE REACTION TO PERMIT FURTHER OXIDATION OF THE GAS. THIS IS USUALLY ACCOMPLISHED WITH HEAT RECOVERY EQUIPMENT SUCH AS ECONOMIZERS, BOILERS, SUPERHEATERS OR GAS TO GAS HEAT EXCHANGERS. MOST OF THAT EQUIPMENT CONVERTS THE WASTE HEAT TO STEAM WHICH HAS HISTORICALLY BEEN USED TO OPERATE BLOWERS AND TO HEAT AND CONCENTRATE PHOSPHORIC ACID.

WITH THE RAPIDLY RISING COST OF THE FUEL REQUIRED TO PRODUCE ELECTRICAL ENERGY THE PHOSPHATE INDUSTRY BEGAN LOOKING HARD AT CONSERVATION STEPS. SINCE 1977 IT HAS REDUCED ITS TOTAL ENERGY REQUIREMENTS PER TON OF 100% PHOSPHORIC ACID PRODUCED BY 11%. THIS WAS ACCOMPLISHED PRIMARILY BY TIGHTENING UP ON PROCEDURES AND IN SOME CASES MAKING PROCESS OR EQUIPMENT CHANGES TO REDUCE ENERGY CONSUMPTION. I AM NOT AWARE OF ANY SINGLE BASIC INDUSTRY THAT HAS MADE THAT SIGNIFICANT IMPROVEMENT IN THE CONSERVATION OF ENERGY.

TWO YEARS AGO THE CHEMICAL COMPLEX I AM RESPONSIBLE FOR RECOGNIZED A NEED TO REPLACE TWO OF ITS SULFURIC ACID PLANTS DUE TO THEIR AGE AND OVERALL EFFICIENCY. THE MOST CURRENT DESIGN OF SULFURIC ACID PLANT THEN AVAILABLE PROVIDED HIGHLY EFFICIENT CONVERSION OF SULFUR TO SULFURIC ACID BUT DID NOTHING TO IMPROVE UPON WASTE HEAT RECOVERY AND UTILIZATION OF THAT ENERGY AS ELECTRICITY.

SUBSEQUENT LENGTHY MEETINGS WITH ONE OF THE WORLD'S LEADING DESIGN CONSTRUCTORS OF SULFURIC ACID PLANTS LED TO BREAKING GROUND AT CONSERV LAST MONTH FOR THE ERECTION OF A FIRST OF ITS KIND HIGH ENERGY EFFICIENT SULFURIC ACID PLANT. IT SHOULD BE ON STREAM BY SEPTEMBER 1982.

THIS PLANT INCORPORATES DESIGN AND EQUIPMENT PERMITTING A 30% INCREASE IN RECOVERED ENERGY PERMITTING THE INSTALLATION OF A TURBO GENERATOR WHICH WILL SUPPLY 13 MW OF ELECTRICITY TO THE CONNECTING UTILITY AND STILL SUPPLY STEAM FOR THE OPERATION OF OTHER PLANT PROCESSES IN THE CHEMICAL COMPLEX AT CONSERV.

IN ONE OF THE FIRST SUCH COGENERATION AGREEMENTS IN THE STATE CONSERV WILL SELL ALL OF ITS GENERATED POWER TO THE UTILITY AND WILL FURTHER CONSERVE ON ENERGY CONSUMPTION BY BUYING INTERRUPTIBLE POWER FOR ALL OF ITS COMPLEX EXCEPT THE NEW ACID PLANT. THE ELECTRICITY SOLD TO THE UTILITY IS SUFFICIENT FOR 8,000 HOMES OR A CITY THE SIZE OF MULBERRY OR DADE CITY.

FLORIDA'S PHOSPHATE INDUSTRY, AS I SAID PREVIOUSLY, PRODUCES MORE SULFURIC ACID THAN ANY OTHER PLACE IN THE WORLD. IF ITS 17,000,000 TON/YR ACID PRODUCTION COULD BE UTILIZED FOR COGENERATION A POTENTIAL 200-300 MW ELECTRICAL ENERGY CAPABILITY EXISTS. A POWER PLANT OF THIS SIZE WOULD COST IN THE NEIGHBORHOOD OF $360 MILLION TO $502 MILLION. THE ABILITY OF A UTILITY TO DEFER INTO THE FUTURE AN EXPENDITURE OF THAT MAGNITUDE WOULD RESULT IN SIGNIFICANT AND HIGHLY DESIRABLE DELAY IN THAT UTILITY'S FINANCING REQUIREMENTS AND, OF COURSE, IN THE PRICE WE ALL PAY FOR POWER.

RONALD E. GRAF
VICE PRESIDENT-GENERAL MANAGER
CONSERV, DEPARTMENT OF PHILIPP BROS.
DIVISION OF PHIBRO CORPORATION

BIOGRAPHICAL SKETCH

Mr. Ronald E. Graf, born in New Jersey, raised in Florida and graduated from the University of Tampa with a B.S. in Geology.

Mr. Graf is the Vice President and General Manager of Conserv, a Department of Philipp Brothers, Division of Phibro Corporation. Conserv manufactures high analysis nitrogen-phosphate fertilizer materials and is located near Lakeland, Florida. He has been in the phosphate industry for 42 years holding executive positions with Cities Service Company, Gardinier Inc., and Gardinier Big River Inc.

Mr. Graf also holds the position of

1) Director of the Florida Phosphate Council
2) Director of the Florida Chamber of Commerce & Vice Chairman of the Chamber Energy Committee
3) Fellow of the University of Tampa
4) Director of the First National Bank of Lakeland

His hobbies include swimming, running, fishing, Civil War History, and producing a product vital to sustaining all life as we know it.

Mr. FUQUA. Thank you very much, Mr. Graf.

Do you know how many facilities of this type other than the one you spoke of from Conserv is in operation? I know the Occidental people over at White Springs have a cogeneration facility and, I think, look to the power company to supply additional power back to them. Are most of the phosphate companies moving in this direction?

Mr. GRAF. They are beginning to discuss this with the various utilities, primarily Florida Power and Tampa Electric. Most of these facilities are in Polk County and Hillsborough County.

Mr. FUQUA. What other opportunities do we have in Florida for cogeneration besides phosphate which is a very interesting one? You also had the case of the St. Regis Paper Co. over in Pensacola. They're doing it. What other industries do we have that are adaptable for cogeneration that produce steam or some kind of heat that could be utilized?

Mr. GRAF. I'm not familiar in detail with any of the facilities other than the ones that were mentioned.

Any facility that has a chemical reaction that is exothermic in nature or produces heat, and that heat is not required in the process itself, would lend itself nicely to cogeneration.

The size of the facility, of course, would depend upon whether it would be feasible to go into that or not. Power generation is very expensive; however, without the cogeneration privilege in our particular facility, it would not have flown.

Mr. FUQUA. Kinney, you mentioned the building energy performance standards and the decision, as I understand it, has been to continue the R. & D. on those projects which our committee has under its jurisdiction. The regulations and so forth which are under the Committee on Energy and Commerce are, as I understand it, intended to be phased out.

Mr. HARLEY. Excellent.

Mr. FUQUA. We will be pleased to note that. And we do have some very good conservation R. & D. going on. Particularly, we have talked about air-conditioning; right now, a modern-day air-conditioner has about a 5-to-1 ratio of input to output. We have some research going on that could extend that to 13 to 1, which is very significant.

Mr. HARLEY. Congressman, this is pretty well industrywide, too, that there is a lot of research going on. I believe you are fairly familiar with some of it. There is a difference between heat-gain States—I am sure you know that—and heat-loss States, and we here in Florida have to be very peculiar about what happens with that humidity problem.

If you raise that efficiency level without a corresponding humidity removal mechanism, then you have created another whole set of problems that I don't think we really want to get into.

Mr. FUQUA. Of course, there has been a considerable amount of improved efficiency in electrical appliances, not necessarily the plug-in kind, but in compressors that would affect refrigerators, freezers, and air-conditioners greatly.

Mr. HARLEY. Yes, sir. Dishwashers, you name it, right on down the line, they are getting more and more efficient.

As long as that public demand is there and looking at that monthly bill, I think the industry is going to continue to provide those energy-efficient appliances, and with a little pressure here and there, you know——

Mr. FUQUA. Of course, we have had those appliances that were really developed by NASA, electric motors so that when they are in an idling state, energy consumption is reduced.

Dr. Smith, you mentioned several things, and I know that you have been involved with biomass, and, of course, you mentioned OTEC. I was very intrigued by your comments that many of these products were not OTEC but biomass and many products were grown for other purposes, but we can find a dual use for those plants.

I remember Congressman Nelson was with me earlier this year in China and we noticed stacks all over the field where they had taken the cotton stalks and stacked them up and put a string around them. I inquired what did they plan to use them for; it was used to start fires for use in their homes.

That was a very valuable use of their natural resources, in this case biomass, but I am thinking more involved uses, such as the plant that has been mentioned here today in Starke and others. We have a very tremendous resource in fiber. Because of the warm climate, it does reproduce more rapidly here than in more colder climates.

I am concerned what effect funding may have on a continuation of some of the very valuable programs that have been going on and many that you have been involved in. Could you elaborate?

Mr. SMITH. We share your concern. In addition to capturing the waste materials, we must learn how to convert them. For example, many of the residues that you referred to, we do have conversion technologies but not into the energy forms needed.

For example, wood is probably the only available and affordable biofuel feedstock that we have, but the problem is, our real deficiencies are in liquid and gaseous fuels, and conversion technology is not available to convert wood to these forms while the resource is.

On the other hand, the resources for liquid and gaseous fuels is probably not restrained as much by conversion technology as it is in feedstock supply.

In that case, we need to develop the feedstock and that depends on research and development. So there is a need for research and development, but we do not see that need being responded to by those who fund research and development activities.

We are certainly very much concerned about developing biomass energy here in Florida because of our energy requirement. We are not under snow and ice parts of the year; we do have the water and solar energy and a reasonably favorable environment to grow biomass. Sometimes it doesn't rain when it should, but nevertheless in the long term, we can foresee the potential to produce energy from biomass if we have research and development support to fund such programs.

Mr. FUQUA. I always was interested when I was growing up—and, by the way, we grew up right near each other—that if they could find some use for coffee weeds—that was during peanut

season when we had to get those out of the peanut crops, and I know that is one product you could grow very prolifically around peanuts.

Mr. SMITH. I am not sure whether or not, Congressman, that we are working with coffee weeds, but that is an interesting point that you raised.

We have got to look at unconventional plant material. I don't think we need to look at corn and soybeans, those crops we prize highly for their value as food.

I think when we find a fuel crop, it will come from that spectrum of plants such as the coffee weed and other plants that are so dog-gone productive even in spite of man——

Mr. FUQUA. Yes.

Mr. SMITH. And those are the types we are looking at. I hope we can sustain our program. I did an inventory last week of the different biomass crops that we are examining in our research program, none of which are predominately considered for food. We are looking at over 100 different species, and somewhere in there we hope to find some for energy cropping and be able to develop them through to commercial utilization as an energy crop.

Mr. FUQUA. I am sure if you develop it and have a need for it that you will invariably develop some type of parasite that will cause it not to grow.

Mr. Nelson.

Mr. NELSON. Thank you, Mr. Chairman.

Mr. Harley, you remember back in the old days, the Growth and Energy Committee spawned a number of the ideas that you testified to today. In glancing over your glowing testimony as to the tinkering going on in order to come up with a code that works, I want to ask you from a practical standpoint: The code is in place, it is constantly revised, you say it is one in which a builder can sit down and figure out what can be the most energy-efficient house by how many points there are and so forth.

Are Florida builders really sitting down and doing this today and are they making the most energy-efficient homes that they can?

Mr. HARLEY. Well, let me answer your question the way you asked it. Yes, I would say that they are sitting down because they are required to submit that form 900 when they submit an application for a building permit.

They must also certify that that particular structure, whether it be a home or commercial building or whatever, complies with the Energy Code. They certify that on their initial application they are, in fact, using many of the cost-efficient and the energy-efficient products that are available on the market.

The system of incentives that Commissioner Cresse testified to, aids them in responding to that economic consideration, so I think so, yes.

Because the numbers, the EPI numbers are gradually coming down from where we established them. There was no magic to the hundred figure except the hundred was always perfect in our schoolboy days, so by using that as a threshold you are gradually writing those numbers down and you are gradually adjusting the formula that it takes to get to the hundred.

The hundred, maybe will stay there, but the formula to get to the hundred will be tightened up.

Yes, I think we have come a long way. I think the average single-family residential structure in Florida is coming in at about 78 points.

Mr. NELSON. So what are the barriers that are still left in the way of improving energy efficiency in new homes?

Mr. HARLEY. Oh, there, we really need to decide. There has been some conflicting testimony here today on how much insulation really is in fact good, R-19 or R-38.

I am personally of the persuasion any time you put more than R-19 you are risking the damage of rotting the roof off the house, but you know, that has yet to be proved.

The amount of insulation in the heat-gain state and how much insulation does it pay to have in a heat-gain state against air-conditioning, the double-paning or triple-paning of windows—there is still a lot of R. & D. work that needs to be done on the various products that are available.

We are concentrating too much on the efficiency of appliances, although that's very important. The most dramatic thing that you can do is concentrate on those one or two things, but we cannot ever forget that envelope.

The envelope basically is where your energy is consumed. The other is the energy equivalent that goes into that particular structure.

You heard testimony here today about solar and why it is not being utilized more in Florida than it was back in the early forties. It is a cost consideration. You can't tell a person that he's going to put in solar or have him put it in his home at $2,000, $2,500, $3,000, whatever it costs. With the mortgage interest rates that we have right now it is just not cost beneficial.

So, in answer to your question about constantly upgrading the code, we, with the Public Service Commission and all the other regulatory agencies—we being the industry—participated in writing that bill in 1981. The bill gives the authority to the Department of Veterans and Community Affairs to take an annual look at this situation, reviewing the energy-efficient equipment available, all the energy-efficient techniques that are available on the market, making sure we didn't specify something that wasn't available, and we would do this annually.

We are in that process right now. The public hearings have been held. There is a Select Technical Committee on Energy that will meet here in Tallahassee over on the house side in Morris Hall on November 4, 5, and 6 to make final recommendations as to the changes this year. Then that will go to the rule hearing to be effective probably January 1, 1982. There will be a similar conference next year and presumably every year after that.

Mr. NELSON. Let me ask any one of you what are the incentives, if any, in place now in Florida that would encourage the owners of rental property to have greater energy efficiency, for business or residential?

Mr. HARLEY. I am not aware of any, Congressman, other than this bill we passed in 1981, that says all air-conditioners and all

equipment would have certain energy efficiencies, as established by the department.

Other than that, on a replacement value of a piece of equipment, if it qualified for the local utility's Good Cents Home or one of the other promotional homes they have got in their rebate program, but there is no governmental rebate program except as authorized by the public utility or the private utility operating in base communities. I am not aware that there is any direct rebate or incentive for that.

Mr. FUQUA. Thank you very much, Mr. Nelson. Let me thank you, Mr. Harley and Dr. Smith and Mr. Graf, for being with us this morning, and all of the witnesses we have had.

I apologize for going over the time. I hope it hasn't inconvenienced your other engagements that you may have had.

Thank you very much. Those of the committees that have been heard are very interested as far as efficiency and conservation is concerned, are very inexpensive ways of conserving energy and helping utilities and individuals lower utility bills. I want to thank all our witnesses for being here this morning.

The subcommittee will stand adjourned.

[Whereupon, at 12:30 p.m. the subcommittee adjourned.]

# APPENDIX

## Reports and Additional Information From Participants

FLORIDA PUBLIC SERVICE COMMISSION

1981 ANNUAL ENERGY ACTIVITIES REPORT

TO THE

GOVERNOR'S ENERGY OFFICE

PREPARED BY

ELECTRIC AND GAS DEPARTMENT

FLORIDA PUBLIC SERVICE COMMISSION

SEPTEMBER 10, 1981

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## INTRODUCTION

In 1887 the Florida Legislature created the Public Service Commission (PSC) to regulate railroad passenger and freight rates and operations. Since 1887, the PSC's jurisdiction has been extended to include telephone, telegraph, motor carriers, investor-owned electric utility rates and services, certain water and sewer utilities, and investor-owned natural gas utilities. The 1974 "Grid Bill" extended PSC jurisdiction to municipally operated electric utilities and rural electric cooperatives for other than ratemaking purposes. The 1980 Legislature established specific authority for the PSC to establish conservation goals for all electric utilities and the two largest natural gas utilities and made the PSC the deciding agency on the need for new power plants and high voltage transmission lines.

Florida has either implemented or is currently investigating the substantive provisions of the National Energy Plan. "The 1981 Annual Energy Activities Report to the Governor's Energy Office" is an overview of recent Commission activity in energy matters. References to ratemaking and electric utility system planning have been omitted although the concepts are interconnected. The comments expressed herein are those of the Electric and Gas Department and may or may not be those of the Florida Public Service Commission.

1. Conservation Goals - Docket Number 800522-EU

The 1980 Legislature passed the Florida Energy Efficiency and Conservation Act (FEECA). Section 366.82 (2) Florida Statutes, as created by Chapter 80-65, Laws of Florida, directed the Florida Public Service Commission to

> . . . adopt appropriate goals for increasing the efficiency of . . . energy consumption, specifically including goals designed to increase the conservation of expensive resources, such as petroleum fuels, and to reduce the growth rates of electric consumption and especially of weather-sensitive peak demand.

The initial goals were required to be adopted by September 1, 1980. The Commission held very extensive workshops and hearings to develop the information necessary to adopt comprehensive and rational goals to enhance job-producing economic growth by lowering energy costs from what they otherwise would be if these goals are not achieved.

To meet the September 1, 1980 deadline, the Commission voted on August 29, 1980 to adopt emergency rules establishing the initial goals to apply to electric and gas utilities. On November 13, 1980 the Commission established permanent goals. Minor changes to the rules establishing the goals have been necessary and have been adopted.

In formulating goals the Commission recognized that the primary factor forcing increases in electric consumption and the need for new power plants is population growth. Thus, the Commission adopted conservation goals which adapt to the rate of increase in residential customers. Historically, the rate of growth in peak power demands has exceeded the rate of growth in residential customers. To reverse this trend, the Commission adopted the goal of reducing the rate of growth in peak power demands to 72.25% of the rate of growth in residential customers by

1989. To insure that the per unit cost of electricity in the long term decreases from what it otherwise would be, the Commission specified that the rate of increase in kilowatt-hour consumption shall be larger than 72.25% but less than the rate of increase in residential customer growth.

Another specific goal adopted by the Commission was the number of energy audits. By 1982, energy audits are to be performed statewide at the rate of 150,000 per year and by 1984 this rate is to increase to 250,000 per year statewide. The number of audits to be performed annually by each utility was determined by proportioning the statewide number of audits by the number of residential customers who consumed more than 9,000 kilowatt-hours for a given utility to the statewide number of residential customers whose consumption exceeded 9,000 kilowatt-hours in 1979. At present, all energy audit routines submitted for PSC evaluation have been approved and are being used.

The Commission has four persons committed full-time to monitoring the conservation efforts and expenditures of the participating utilities.

## 2. MATRIX OF UTILITY CONSERVATION PROGRAMS

| SPECIFIC CONSERVATION MEASURES | FP&L | FPC | TECO | GULF | JEA | ORLANDO | LAKELAND | TALLAHASSEE | CLAY | WITHLACOOCHEE | LEE | FPUC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. Reflective Window Film | x | | | | | | | x | x | x | x | x |
| 2. Residential Ceiling Insulation | x | x | | | x | | | | | | | |
| 3. Fix-up/Weatherization | | x | | | x | x | | x | x | x | x | x |
| 4. Tree Planting | | | | | x | | | | | | | |
| 5. Appliance Efficiency | x | | | x | x | x | | | x | | | |
| 6. Heat Pump | x | x | x | x | | x | x | | x | x | | x |
| 7. Alternative Water Heating | | | | | | | | | | | | |
| Solar Water Heating | x | x | | x | | x | x | | | x | | x |
| 8. Water Heater Insulation | x | x | | x | x | x | | | x | x | x | x |
| 9. Water Flow Restrictors | x | x | | | | | x | x | x | x | x | x |
| 10. High Pressure Sodium Streetlights | x | x | | x | x | x | x | x | x | x | x | x |

## 2. MATRIX OF UTILITY CONSERVATION PROGRAMS (CONTINUED)

| | FP&L | FPC | TECO | GULF | JEA | ORLANDO | LAKELAND | TALLAHASSEE | CLAY | WITHLACOOCHEE | LEE | FPUC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **ENERGY AUDITS** | | | | | | | | | | | | |
| 1. Residential Conservation Service | x | x | x | x | x | x | x | x | x | x | x | x |
| 2. Walk Through/Customer Mail-In | x | x | x | x | x | x | | x | x | x | x | x |
| 3. Commercial/Governmental | x | x | x | x | x | x | | x | x | x | x | x |
| 4. Industrial | x | x | x | | x | | | | x | x | | x |
| 5. Governmental Co-funding | | | | x | | | | | | | | |
| **MARKETING - ADVERTISING - PROMOTION** | | | | | | | | | | | | |
| 1. Energy Retail Store | | x | | | | | | | | | | |
| 2. Model New Home Features | | x | x | x | x | x | | | x | | x | |
| 3. Model New Passive Home Features | | x | | | | | | | | | | |
| 4. Customer Education | | x | x | | x | | x | x | x | x | x | x |
| 5. Commercial/Industrial/Governmental Energy Efficient Buildings | | x | x | x | x | | | | | | | |

## 2. MATRIX OF UTILITY CONSERVATION PROGRAMS (CONTINUED)

| | FPSL | FPC | TECO | GULF | JEA | ORLANDO | LAKELAND | TALLAHASSEE | CLAY | WITHLACOOCHEE | LEE | FPUC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PEAK DEMAND REDUCTION (NON-RATE STRUCTURE) | | | | | | | | | | | | |
| 1. Storage Water Heating | | | x | | | | | | | | | |
| 2. Water Heater Timers | | | | | | | | x | | | | |
| 3. Thermal Energy Storage | | | | | | | x | | | | | |
| 4. Residential Pool Pump Timers | x | x | | | | x | | | | x | x | x |
| SUPPLY/DEMAND | | | | | | | | | | | | |
| 1. Voltage Band Width Reduction | | | | | | x | x | | x | | | |
| 2. Cogeneration | x | x | x | | x | | x | x | x | x | x | |
| FINANCIAL | | | | | | | | | | | | |
| 1. Loans | | x | | | | | | | x | x | x | |
| 2. Employee Incentives | x | | | | | | | | | | | |

## 2. MATRIX OF UTILITY CONSERVATION PROGRAMS (CONTINUED)

| RATE STRUCTURE | FP&L | FPC | TECO | GULF | JEA | ORLANDO | LAKELAND | TALLAHASSEE | CLAY | WITHLACOOCHEE | LEE | FPUC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. Load Management | x | x | x | | x | x | x | x | x | x | x | x |
| 2. Flat Rates (Required by 4/1/81) | x | x | x | x | x | x | x | x | x | x | x | x |
| 3. Conservation Inverted Rates | | | | x | x | x | x | | | | | |
| 4. Commercial/Industrial Interruptible | x | | x | | | | | | | | | |
| 5. Residential/Small Commercial Time-of-Day | x | | | | | | | x | | | | |
| 6. Large Commercial/Industrial Time-of-Day | x | | | | | | | x | | | | |
| 7. Commercial/Industrial Curtailable | x | | | | | | | | | | | |
| 8. Demand Rate Revision | | | | | | | | | | | | |
| 9. Service Availability Charge with a Conservation Credit | x | | | | | | | | | | | |

3. Energy Conservation Audit Rule - Chapter 25-17

The Florida Energy Efficiency Conservation Act of 1980 extended the PSC's jurisdiction for energy conservation to all utilities, not just those under federal law. As a result, it was possible to develop standard audit procedures that would apply to all utilities.

Three types of audits have been approved. The primary audit, the "Energy Conservation Audit," is an energy analysis of a residence in which the utility performs an on-site evaluation of the residence and, if applicable, provides installation and financing arrangements and post-installation inspections. The "Customer Assisted (Mail-in) Audit" is an energy analysis of a residence in which the utility supplies a data collection form to the eligible customers. The form is completed by the customer and mailed to the utility. Upon receipt of the completed forms, the utility analyzes the data and submits the results of the evaluation to the customer. The "Alternative (Walk-through) Audit" is an energy analysis of a residence in which a qualified auditor simply walks through the residence and advises the customer of energy conservation practices and measures that would be feasible to implement. The customer has a choice of which of the three audits is desired.

The Commission petitioned the U. S. Department of Energy to waive the requirements for utilities to audit for passive solar systems, active solar water space heating systems, flue opening modifications, electronic ignition devices, and wind energy systems. These measures are not cost-effective in Florida. DOE approved the request effective April 10, 1981. All utilities in Florida are now engaged to some degree in an audit program.

4. Public Awareness Grants (undocketed)

The 1980 Florida Legislature credited $1 million to the Florida Energy Trust Fund for the Florida Public Service Commission (PSC) to engage in "educational, public awareness and related development and demonstration projects" on the subject of energy and energy conservation particularly as pertaining to electric and gas utilities. Topics that were selected to encourage energy conservation include (1) what is expected to happen to electric bills if the rate of growth in peak electric demand is not reduced and (2) how individuals can reduce their electric utility's peak demand through the use of highly efficient appliances and through lifestyle changes.

The PSC, after receiving many bids, contracted WJCT-TV in Jacksonville to educate the public through numerous talk-show tours and slide/tape presentations as well as television, radio, newspaper, magazine, and movie theatre advertisements. Additional newspaper and brochure messages were created with the assistance of the Governor's Energy Office. The Audichron Company of Atlanta, Georgia produced magnetic drums with energy conservation recordings which are now being used in Florida banking institutions for time and/or temperature announcements. To date, no further public awareness projects have been completed.

5. Loan Guarantee Rule - Docket Number 800565-EG

The Loan Guarantee Rule is being promulgated pursuant to FEECA. The rule allows the PSC to use up to $5 million of its Trust Fund to guarantee loans made by utilities to customers who install systems to cut weather-



91-487 O—82——12

sensitive peak demand. The PSC held a hearing on the proposed rule in July 1981. Both utility and financial communities expressed interest. The Commission is scheduled to vote on modifications and adoption of the rule at the September 21, 1981 Agenda Conference.

6. Conservation Cost Recovery Rule - Docket Number 800604-EG

Section 366.82 (5) Florida Statutes, as created by Chapter 80-65, Laws of Florida, requires each electric and gas utility over which the Commission has ratemaking authority to

> . . . estimate its costs and revenues for [energy conservation] audits, conservation programs and for implementation of its plan for the immediately following 6-month period. Reasonable and prudent unreimbursed costs projected to be incurred, or any portion of such costs, may be added to the rates which would otherwise be charged by a utility upon approval by the Commission.

Additionally, the Commission is authorized to consider the difference between actual and projected cost results in approving rates for succeeding periods. The hearings on applications for cost recovery are scheduled to coincide with hearings on the utilities' fuel cost recovery. The Commission Rule governing energy conservation cost recovery 25-17.15 F.A.C., was adopted by Order Number 9715 on December 17, 1980.

The first Conservation Cost Recovery hearing was held March 25-30, 1981. Five electric utilities and two distributors of natural gas presented testimony describing the programs which they were implementing, the related expenses incurred to date, and the expenses projected for the balance of the recovery period. Commission Order Number 9974 gives the details of programs and expenses approved for cost recovery.

The Commission also voted to allow rebates for more efficient heat pumps and air conditioners to be recovered through the conservation cost recovery clause (minimum 2.5 COP/7.5 EER for heat pumps and 8.5 SEER for straight cool air conditioners).

The second Conservation Cost Recovery hearing was held August 19-21, 1981. At this time the eligible utilities presented actual cost data from January through June and projected cost data from July through September. In addition, projected cost data for October 1981 through March 1982 were reviewed and projected costs were authorized.

7. Declining Block Rates - Docket Number 790571-EU

A declining block rate is a rate in which per unit charges decrease as consumption increases. An example is a rate consisting of a 5¢ charge per kilowatt-hour for monthly consumption up to 750 kilowatt hours and 4¢ per kilowatt hour for additional consumption.

As of August 1, 1981 all electric utilities except the City of Leesburg have eliminated declining block rates. Leesburg is expected to be in compliance in the near future. Declining block rates have been replaced by flat rates.

8. Peak Load Pricing - Docket Number 780793-EU

In this docket the Commission voted to reject the wording of the Federal PURPA standard requiring mandatory time-of-day rates. Sufficient evidence showing that mandatory time-of-day rates meet all the goals of PURPA in a cost-effective manner was not presented.

Instead, the Commission adopted optional time-of-day rates for the four investor-owned electric utilities. The Commission set uniform on-peak/off-peak hours for all utilities to reflect the power broker concept of interchange among utilities and the fact that the Public Service Commission primarily determines kilowatt "need" on a peninsular basis irrespective of power plant ownership or individual utility peak demands. The time-of-day rates were offered effective January 1, 1981. The customer has the option of either paying for the meter or being assessed a $6 monthly charge.

The Commission also adopted the following policy:

> Time-of-Day Rates Standard - When such rates are cost-effective, the rates charged by an electric utility for each group of customers shall be time-differentiated in order to reflect the cost of providing service to such customers at different times of day. "Cost-effective" means that the long run benefits to the utility and its customers exceed the cost of meters and other associated costs. Specific cost-effectiveness methodologies may be prescribed by the Commission.

9. Cogeneration - Docket Number 780235-EU

Cogeneration, as used by both Federal and state regulatory bodies, refers to the sequential use of energy wherein waste industrial process steam is used to generate electricity and small power production. This concept entails dispersed electrical generating units that are electrically interconnected to the statewide transmission grid and operate synchronously with electric utility generating units. The Commission has pushed aggressively to identify potential cogenerators or their functional equivalent.

Section 210 of the 1978 Public Utilities Regulatory Policy Act (PURPA) required each state regulatory commission to adopt cogeneration rules by March 1981. In May 1981, the PSC adopted rules which required 100% of the utility's fuel cost saving to be passed through to the cogenerator or small power producer. Capacity saving (if any) pass-through is to be negotiated on an individual basis. Tariffs are expected to be approved for Florida's four largest investor-owned utilities in the near future.

10. Transmission Line/Power Plant Site Rules - Docket Number 800593-EU

Docket Number 800593-EU, Rules for Transmission Line/Power Plant Need Determination Proceedings, were approved by Commission Order Number 9631 on November 12, 1980. These rules were promulgated as a result of changes made by the 1980 Legislature to the Commission's statutory authority. The Commission's final action regarding the need for proposed transmission/generating facility additions is now in the final determination of need in proceedings before the Governor and Cabinet.

11. Power Plant/Transmission Line Need Determination Proceedings

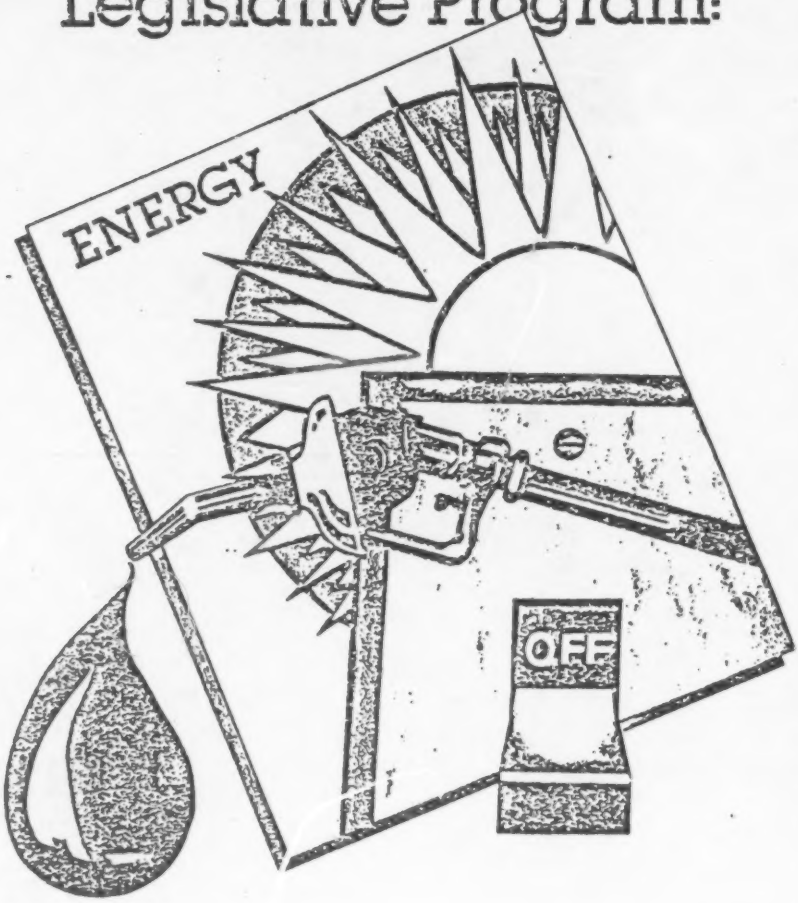
Power Plant Need Determination Proceedings

During the latter part of 1980 and in 1981, the Commission certified the need for the following generating facility additions:

1. Tampa Electric Company's 415 megawatt net, coal-fired Big Bend Unit Number 4

Governor Graham's

# Legislative Program:



# A CHRONOLOGY
# Of the Governor's Energy Quotes

**"Energy issues must be included on the agenda of the eighties in Florida. The energy crisis is real. The oil shortages are real. And our commitment to confronting the crisis and the shortages must also be real—and realistic.**

**We must take all possible positive steps, however small, to prevent a repetition of the events of 1973, and we must begin working now to assure that in the coming decade we are not hindered as we have been in the past decade by the constraints of energy shortages."**

• State of the State Address to the Florida Legislature · Tallahassee · April 3, 1979

**"What we face in the next several decades is nothing less than a cultural revolution based on energy. An ongoing process that in a few short years will affect every facet of our day to day existence. . . ."**

• Energy Research and Development Conference · Florida A&M University, Tallahassee · November 13, 1979

**"Our tax system should aid the state in meeting important social and economic goals.**

**In order to meet our commitment to energy conservation, I am recommending that the Legislature be given the authority to grant tax preferences to energy saving techniques such as solar devices."**

• Special Session · Florida Legislature, Tallahassee · November 20, 1979

**"There is not a single huge answer to the energy dilemma, but hundreds of little ones. While our society is not going to grind to a halt tomorrow, we'll begin to see signs along the way; signs which mean the needle is flickering toward empty.**

**The changeover will be difficult, there is not a question about that. But it is coming and that makes decision-making psychologically easier to deal with: we simply have no choice.**

**We can begin conserving now, and ease the transition, or we can wait for the rafters to start falling."**

• State Chamber of Commerce · Orlando · December 14, 1979

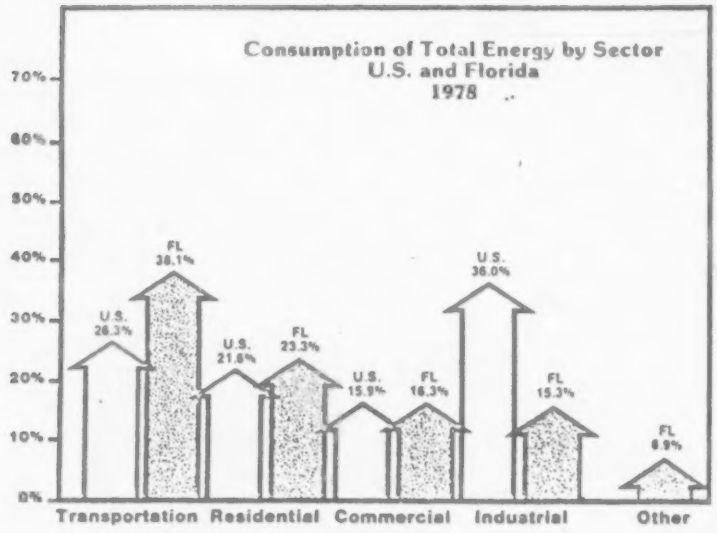
**"It appears that Americans are finally convinced the energy shortage is real, that we are far too dependent on unstable foreign "oilatollahs"; that it is time to take action.**

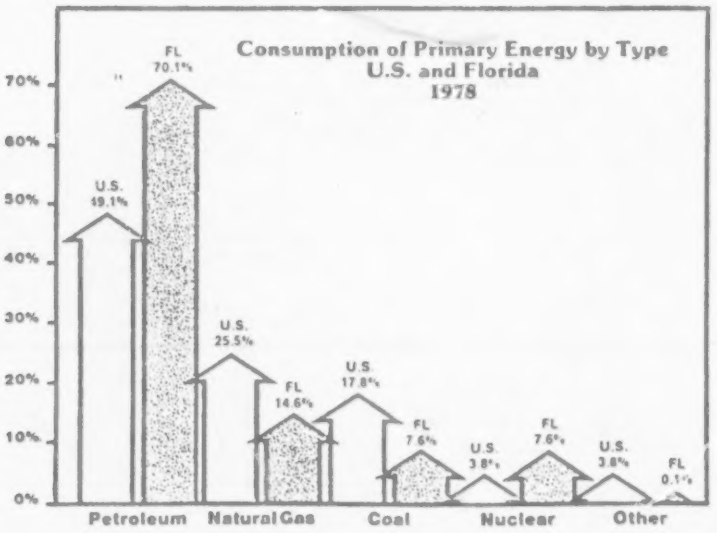
**Those who have not made every effort to encourage gasoline conservation among their employees are not living up to their responsibilities and they shouldn't be heard to complain about excessive government regulation if it should ever come to that."**

• State Chamber of Commerce · Orlando · December 14, 1979

**"Our agriculture and tourism industries are particularly energy intensive and thus vulnerable. Florida's utilities are twice as dependent on petroleum for electric generation as the national average and will therefore be significantly more affected by a requirement to cut oil-dependent utilities in half."**

• Speech to Council of 100 · Tampa · January 7, 1980


Consumption of Total Energy by Sector
U.S. and Florida
1978
70%
60%
50%
40%
30%
20%
10%
0%
U.S. 26.3%
FL 38.1%
U.S. 21.6%
FL 23.3%
U.S. 15.9%
FL 16.3%
U.S. 36.0%
FL 15.3%
FL 6.9%
Transportation
Residential
Commercial
Industrial
Other


Consumption of Primary Energy by Type
U.S. and Florida
1978
70%
60%
50%
40%
30%
20%
10%
0%
U.S. 49.1%
FL 70.1%
U.S. 25.5%
FL 14.6%
U.S. 17.8%
FL 7.6%
U.S. 3.8%
FL 7.6%
U.S. 3.8%
FL 0.1%
Petroleum
Natural Gas
Coal
Nuclear
Other

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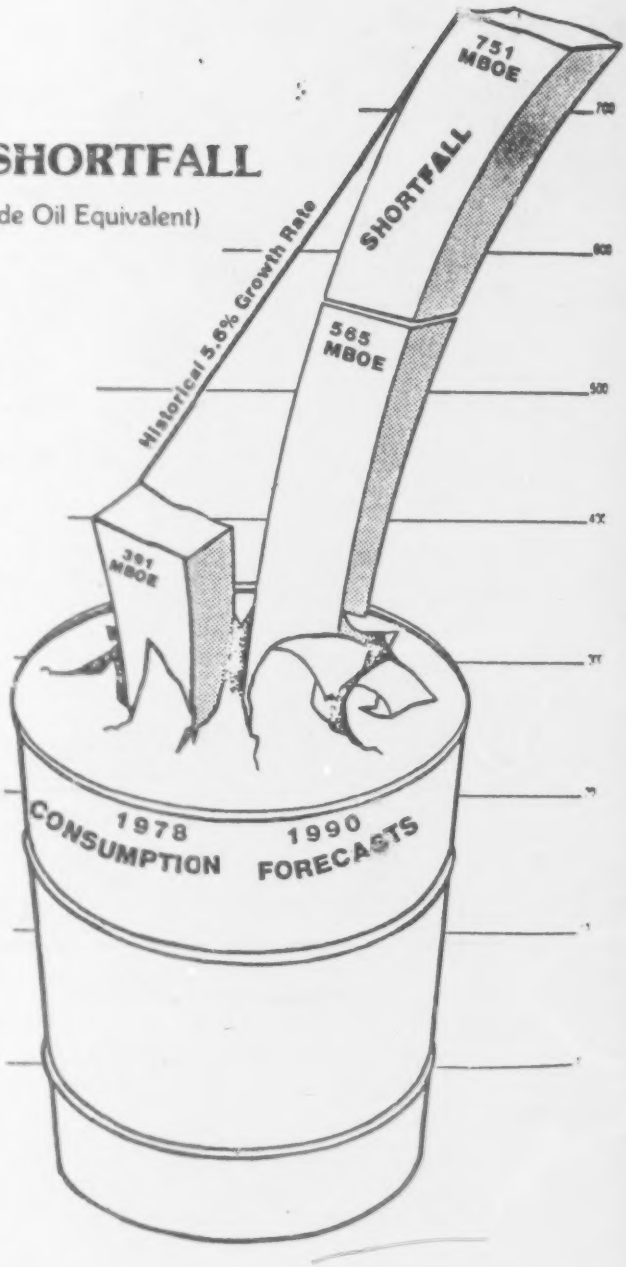
# FLORIDA'S
# 25% ENERGY SHORTFALL

(Millions of Barrels of Crude Oil Equivalent)

This graph illustrates the potential 25 percent energy shortfall forecast for Florida in 1990, unless conservation measures are adopted. This forecast assumes that Florida's increased energy consumption through 1990, would continue at the historical rate of 5.6 percent per year. In 1978, Floridians consumed the energy equivalent of 390 million barrels of oil. Based on past consumption rates, Florida will need 751 million barrels of oil equivalent energy in 1990.

However, the U.S. Department of Energy forecasts 564 million barrels of oil equivalent energy will be available in Florida in 1990.

This means the state would be 187 million barrels short of anticipated demand, a 25 percent shortfall in available energy.



# FLORIDA'S ENERGY FUTURE
# A Program for the 1980's

The United States, and Florida, have entered a new age of energy, and we must adjust our habits, expectations and policies to the new age. Availability of fossil-fuel is constantly decreasing with the likelihood of untimely market interruptions. The OPEC cartel pricing is bringing severe economic consequences with particular significance to the Florida economy.

**Florida's Energy Vulnerability:** Florida's economy is highly sensitive to energy problems. We are heavily dependent on the availability and pricing of transportation fuel.

Florida has in excess of 6 million passenger cars which average less than 15 miles per gallon of fuel consumed. More than 60 percent of Florida's tourism industry arrives by automobile. In Florida, 37 percent of all the energy used is consumed by transportation; compared with 26 percent nationally. In Florida, 70 percent of our energy demands are met by oil, compared with 49 percent nationally. In Florida, oil generates about 50 percent of our electricity—compared with 17 percent nationally.

Our three largest industries; tourism, construction, and agriculture, are all highly energy sensitive.

National projections of energy availability through 1990, even when based on assumptions that there will not be any severe market disruptions due to international events, are pessimistic. If current consumption rates continue, Florida will face a 25 percent energy shortage by 1990.

In 1978, Floridians used 391 million barrels of oil-equivalent energy. With the state's 5.6 percent historical energy consumption growth rate, Floridians will require 751 million barrels of oil-equivalent energy in 1990.

The conservative forecasts of the U.S. Department of Energy project an availability of only 564 million barrels of oil-equivalent energy for 1990, a potential shortfall of 25 percent or 187 million barrels of oil-equivalent energy.

If Floridians fail to take sensible steps to reduce energy consumption, within less than two years substantial economic disruptions will occur in the State.

In the next 10 to 20 years, conservation is the only viable answer to meet the new energy age.

America and Florida can and must continue to vigorously pursue the development of alternative energy sources. But even with substantial success in such development, the capital investments required, and the extended time involved, will not enable us to replace our country's and our state's present dependence on oil and gas.

Our response to the energy crisis since 1973 has not been adequate to prepare us for the difficult years ahead. Based on the need to establish an effective energy program for Florida, a comprehensive program of energy conservation legislation is required.

Governor Graham's energy proposals to the 1980 Legislature are outlined in the followng pages. In addition, the Governor will be proposing administrative actions to be undertaken by Florida's executive agencies and recommendations for energy conservation initiatives under the authority of the Florida Public Service Commission.

**Graham's energy recommendations to the Legislature include:**

- Creation of the Florida Energy Trust Fund, to encourage energy conservation by awarding grants and other economic incentives to residential and business energy consumers.

  New revenue will be deposited in the Florida Energy Trust Fund to finance energy conservation measures. Programs and grants sponsored by the Florida Energy Trust Fund will save an average of 4.67 million barrels of oil-equivalent energy and an average of $167.0 million in energy costs, per year.

- Additional funding from the state surplus to encourage vanpooling by local and state government employees and students at Florida educational institutions. Additional funding is also recommended to help local governments produce energy from waste products, to encourage energy research in Florida, and to help the Florida Highway Patrol enforce the 55 mile per hour speed limit.

- New taxes and tax increases on energy-related sources including oil and uranium, in order to build the Florida Energy Trust Fund.

- Disincentives to energy waste, including a surcharge on speeding tickets and a means of taxing "gas guzzling" automobiles.

- Incentives for property owners to install solar and other energy conservation devices.

- Tougher and more energy efficient building codes.

# THE FLORIDA ENERGY TRUST FUND

**Residential Conservation**

**Grants:** Qualified residential property owners in Florida will be eligible to receive grants from the state of up to 25 percent towards reimbursement of the cost of approved investments in residential energy conservation for items including home insulation and solar hot water heaters. These residential grants, coupled with existing 15 to 30 percent federal income tax credit incentives, will make residential energy conservation home improvements more economical for homeowners. In addition, low-income residential property owners will be eligible to receive grants of 100 percent to pay for energy conservation home improvement, in conjunction with federal assistance programs.

Federal law requires that electric utilities offer comprehensive home energy audits by 1981; these audits should assist residential property owners in determining which grant-eligible investments are necessary to reduce energy consumption in the home.

**ENERGY SAVINGS: For the period 1980 to 1989; the savings will average 460 thousand barrels of oil-equivalent energy each year.**

**DOLLAR SAVINGS: For the period 1980 to 1989; savings will average $30.6 million each year.**

**Business Conservation**

**Incentives:** Businesses in Florida may be eligible to receive either a direct grant or corporate income tax credit for investments in approved commercial and industrial energy savings equipment including waste heat recovery units, cogeneration, and insulation. This business conservation incentive, coupled with existing 20 percent total federal tax credits for conservation improvements, will make business energy conservation investments less costly.

**ENERGY SAVINGS: For the period 1980 to 1989; the savings will average 3.29 million barrels of oil-equivalent energy each year.**

**DOLLAR SAVINGS: For the period 1980 to 1989; savings will average $96.9 million each year.**

# FUNDED FROM OTHER SOURCES

**State and Local Government**

**Funding:** Government must lead the way in achieving energy conservation. As an incentive to state and local government to reduce energy consumption, a series of measures should be adopted and funded from surplus revenues.

• **Vanpool** programs will be established for state and local government transportation of employees to and from work daily, and to transport students to and from classes at educational institutions. The programs will be initiated through grants to selected agencies and schools which apply for funding. Funded at $4 million annually in fiscal years 1980-82, all costs would be returned within five years.

• **Funds** will be provided for local government studies to determine the feasibility of making greater use of municipal urban wastes (biomass products) or any other renewable energy resource as a fuel source for electric powerplants or major fuel burning installations.

• **Funds** will be provided for the state, and local governments, to perform approved energy audits of public-owned facilities and for the purchase and installation of energy conservation and renewable energy resource investments that demonstrate a reasonable "payback" energy savings period of time.

• **Energy Research** will be sponsored by a state fund available to both public and private institutions to implement the state energy policy. This fund will stimulate energy research in Florida and serve to attract substantial federal matching grants. Money will be appropriated from the Florida Energy Trust Fund to finance energy research.

• **A Highway Speed Reduction Fund** will be created to assist the Florida Highway Patrol in reducing the waste of petroleum by motorists, by stricter speed limit enforcement and public education. The fund will pay for concentrated and intensified enforcement, overtime, and new equipment. Money will be appropriated from the Florida Energy Trust Fund to finance the Highway Speed Reduction Fund.

## Where it comes from. . .

**Revenue Sources**
**Fiscal Year 1980-81**

| | |
|---|---|
| Oil Transport Tax | $9.64 million |
| Oil and Gas Windfall Severance Tax | $19.26 million |
| Speeding Surcharge | $10.98 million |
| Uranium Severance Tax | $13.20 million |
| Gas Guzzler Tax | $25.80 million |
| **TOTAL** Estimated Revenue, 1980-81 | $78.88 million |

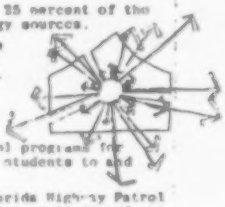
# Florida Needs A Good Energy Program

Ever since the oil embargo in 1973, Americans have known there is an energy problem in this country. But now, seven years later, we are even more dependent on foreign oil than before. Florida is particularly vulnerable to energy shortages since our three largest industries, tourism, construction, and agriculture, are all highly energy sensitive. It is important that Florida do its share to solve the energy problem, and do it soon.

Efficient use of the energy we already have (conservation) is probably our best and cheapest energy source for the next few years. Clean, safe, renewable sources like solar and wind energy are our best bets through the year 2000. Unlike many proposed energy solutions, conservation and small-scale solar cause little environmental damage.

THE GOVERNOR'S ENERGY PROGRAM: A GOOD PACKAGE

This year the Florida legislature will consider many bills dealing with energy. Governor Graham recently proposed an extensive energy program, emphasizing conservation and solar energy and penalizing fossil fuel use. The program includes the following elements:



1. Residential conservation incentives: grants of up to 25 percent of the cost of insulation, solar hot water heaters, and other energy sources.

2. Business conservation incentives: grants or corporate income tax credits of up to 15 percent of the cost of waste heat recovery units, cogeneration equipment, and insulation.

3. Local government conservation grants: grants for energy audits of public buildings and installation of solar and conservation equipment.

4. Vanpool funding: grants and loans to establish vanpool programs for transportation of government employees to and from work and students to and from classes at state schools.

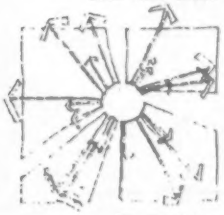
5. Highway speed reduction fund: money to assist the Florida Highway Patrol in reducing the waste of gasoline by motorists, by stricter speed limit enforcement and public education.

6. Energy research fund: grants for energy research in Florida.

7. Biomass and garbage fuel fund: grants to investigate the use of biomass for generating electricity.

8. Speeding surcharge: an additional penalty for motorists who drive over the 55 mph speed limit.

9. Gas guzzler tax: a Florida tax on all new cars sold in the state that get less than fleet average gas mileage.



10. Solar tax exemption: a change in the Florida constitution to exempt solar devices and other energy saving equipment from property taxes when installed on a house.

11. Mandatory solar water heaters: require all new construction, starting in 1985, to have a solar water heater or energy waste recovery unit.

12. Mandatory solar pool heaters: require all new pools to be heated by solar energy if they are heated.

13. Certification of solar installers: regulate solar contractors to ensure consumer protection.

14. Mandatory energy audits: require all houses to have an energy audit at the time they are sold so the property buyer will know how efficient it is. (Electric utilities are required by the federal government to provide this service for free beginning in 1981.)

15. (A few other minor measures.)

The first 7 elements would be funded from the following sources:

1. Oil transport tax: a 2 cents per barrel tax on oil shipped into the country through Florida ports.

2. Redirecting "windfall" severance taxes: using the additional revenue from oil and natural gas severance taxes above those now collected that result from the decontrol of their prices.

3. Excise tax on uranium: a 10% tax on uranium extracted from phosphate ores. (Other mining states already tax uranium production.)

4. Speeding surcharge and gas guzzler tax: (measures #8 and #9 above).

THE COST

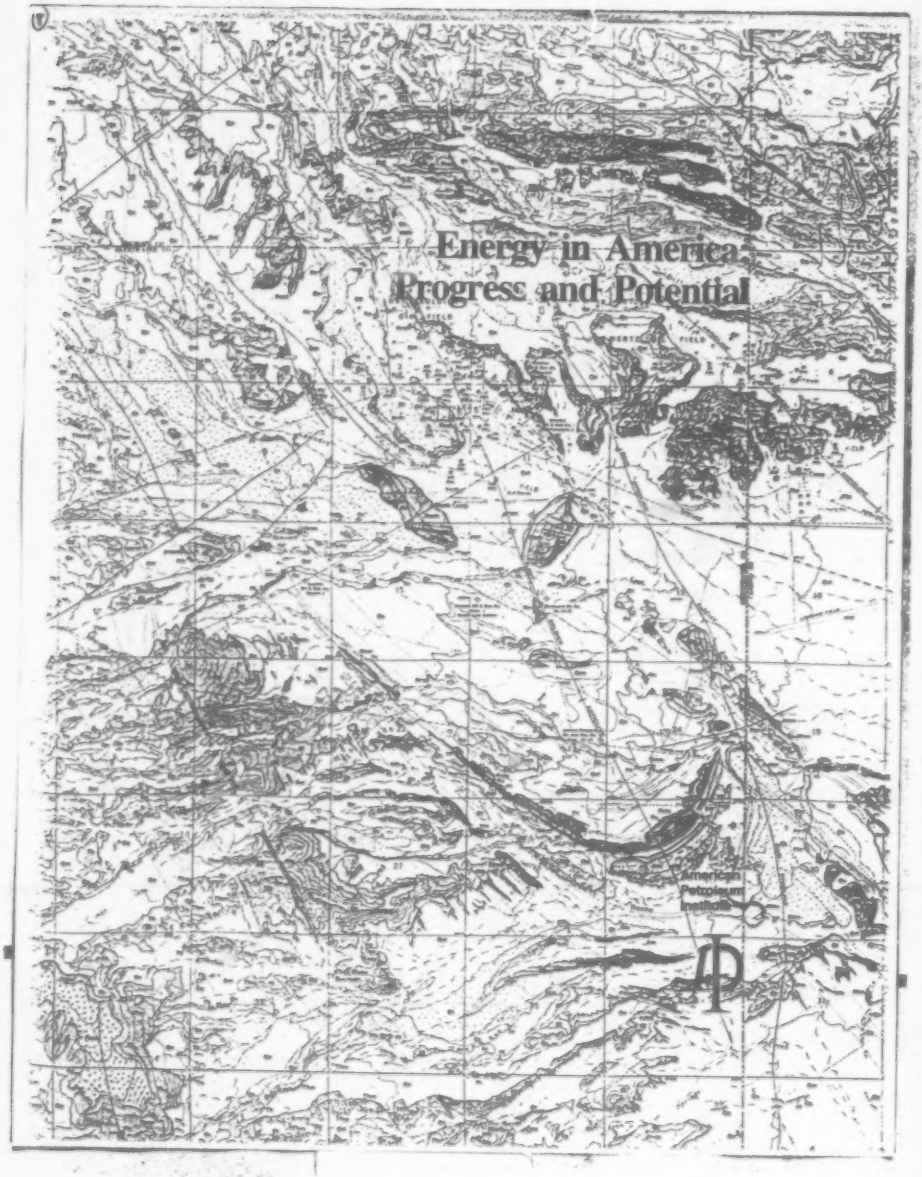
The Governor estimates the entire program would cost $78.88 million next year. It would also generate enough funds to support itself. The program is estimated to save each year the equivalent of 10.7 million barrels of oil worth $494 million. This is an unusually good investment of public funds.

(continued on back)

UPDATE

On March 6th, the Florida House of Representatives Select Committee on Energy voted 10-2 in favor of most of the Governor's program. The $13.2 million tax on uranium was, unfortunately rejected, meaning that some of the other elements would have to be scaled down.

The package now goes to the full legislature to be considered during the session which begins April 8th. Here it will face a tough fight.


Energy in America:
Progress and Potential
American
Petroleum
Institute

# Energy Conservation

Increased production is only one part of the solution to our energy problems. Energy conservation is the other major—and indispensable—part.

Statistics show that the United States is cutting its energy use much more quickly, and to a much larger extent, than most people thought possible only a few years ago.

The good news:

- *1980 energy use—down* almost 4 percent from 1979.
- *1981 energy use (first quarter)—down* more than 9 percent from the first quarter of 1980.

This progress in overall energy conservation has been reflected in Americans' use of oil—especially imported oil—which has dropped sharply in the past several years:

- *1980 oil use—down* more than 8 percent from 1979.
- *1980 oil imports—down* more than 19 percent from 1979.
- *1981 oil use (first half)—down* almost 7 percent from the first half of 1980.
- *1981 oil imports (first half)—down* almost another 20 percent from the first half of 1980.

These dramatic reductions in oil use have resulted both from more efficient use of petroleum products and from substitution of other energy sources for those products ("fuel-switching").

The breakdown of consumption by major petroleum products:

- *Gasoline—down* about 6.5 percent in 1980 from 1979, and down almost 6.4 percent in the first half of 1981 from the first half of 1980.
- *Distillate*—down* more than 13 percent in 1980 from 1979, and down more than 4 percent in the first half of 1981 from the first half of 1980.

*Distillate—used chiefly as home heating oil and diesel fuel.

- *Residual oil** —*down* almost 12 percent in 1980 from 1979, and down more than 17 percent in the first half of 1981 from the first half of 1980.

### Previous Trends

Such developments in energy use are especially striking when compared with previous trends.

For more than a decade before the Arab oil embargo in 1973–74, Americans *increased* their energy use by an average of about 4 percent each year. Growth in consumption was spurred by:

- Reliable energy supplies.
- Generally stable—or declining—"real" energy prices.**

As the 1970s began, analysts expected consumption to continue to climb throughout the decade.

But the oil embargo of 1973–1974 changed this outlook. World oil prices rose fourfold. Recession dampened the economic activity—and energy consumption—of most industrialized nations. In the United States energy use dropped, and a new era of more expensive energy began.

Due to artificially suppressed domestic oil and natural gas prices in this country, the full impact of this new reality was partially obscured for many Americans. American consumers were not encouraged to use oil and natural gas as efficiently as they would have otherwise. Still, some price increases occurred under government regulation and consumers responded by turning to more efficient—and economic—ways of using energy.

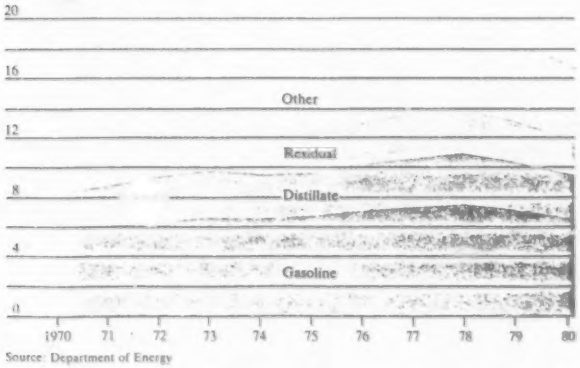
The search for greater energy efficiency was intensified when world prices rose a further twofold, in the wake of the Iranian revolution, in early 1979. And the decision of the U.S. government later that year to begin letting more U.S. oil be priced competitively with foreign oil encouraged consumers to use oil more efficiently than in the past.

The results of this growing response to the new era of more costly energy have been dramatic. Americans now have a much more energy-

*Residual oil—heavier oil used by utilities and industry.

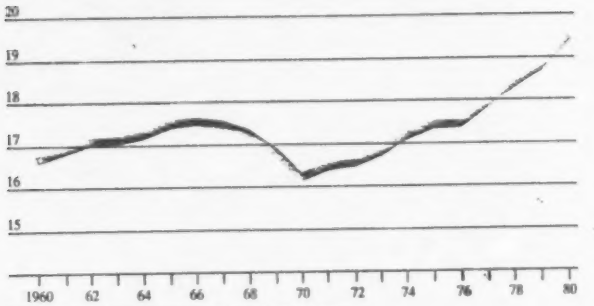
**"Real" prices are adjusted for inflation.

**U.S. Oil Consumption by Product**
(million barrels per day)




Source: Department of Energy

**Economic Output Per Unit of Energy**
(Gross National Product per quadrillion Btus in billions of 1972 dollars)




Sources: *Survey of Current Business* and Department of Energy

efficient economy than they had before the embargo. And, while making this progress, Americans were able to increase their standard of living during the 1970s at a pace that surprised many analysts.

### A Look at Energy Use and GNP

A comparison of energy use and America's Gross National Product (GNP)* shows that recent gains in overall U.S. energy efficiency have been substantial.

Before the Arab oil embargo, energy use and GNP grew at almost exactly the same rate. In each year from 1963 through 1973:

- *Energy consumption* rose an average of 4.4 percent.
- *Real GNP* rose an average of 4.1 percent.

In other words, for every 1 percent of economic growth, energy use also grew by about 1 percent.

But from 1973 through 1979:

- *Energy consumption* grew by an average of less than 1 percent.
- *Real GNP* grew by an average of 2.5 percent.

Thus, for those seven years, a nearly 3 percent increase in GNP required only a 1 percent increase in energy use. This means that Americans in 1979 used about 12 percent less energy for each "real" dollar of GNP than they used in 1972. And in 1980 there was another 3 percent reduction in the amount of energy used for each real dollar of GNP.

### Energy Efficiency

Americans have made impressive progress in conserving energy by using it more efficiently. Some examples:

- Farmers are reducing their use of diesel fuel by methods of crop tillage which cut consumption by as much as 80 percent, according to the U.S. Department of Agriculture.
- Between 1972 and 1980, U.S. oil refiners cut their annual energy use by the equivalent of more than a year's heating oil consumption for all of New England.
- Use by industries of heat recuperators, insulation, energy management systems, more efficient electric motors and lights, steam traps and ceiling fans saved the equivalent of 850 million barrels

*GNP is a commonly used yardstick of an economy's production of goods and services.

of oil in 1979—or about 3.5 months' worth of oil imports.

Total spending for energy efficiency in 1980 amounted to $8.7 billion, according to *Business Week*. That was:

- Twice the amount spent in 1979.
- Greater than the combined spending of the preceding five years.

### Energy Use by Sector

Analysts divide energy use into consumption by three sectors: transportation, residential and commercial, and industrial. A brief look at each of these provides a breakdown of U.S. progress in increasing energy conservation.

### Transportation Sector

Transportation posted the most impressive recent reductions in U.S. energy use—a decline of some 10 percent in 1980 from 1978 levels.

In contrast, from 1965 through 1973, transportation energy use rose by an average of some 5 percent annually. Quadrupled world oil prices in the wake of the Arab oil embargo prompted declines in transportation sector consumption in 1974 and 1975. But energy use climbed again from 1976 to 1978 as motorists, encouraged by declining real prices of gasoline, returned to old driving habits and larger cars.

The sharp drop in total energy use by the transportation sector came in 1979 and 1980, after the Iranian revolution caused fuel prices to escalate again. (Energy used in the transportation sector, of course, is obtained almost entirely from oil.)

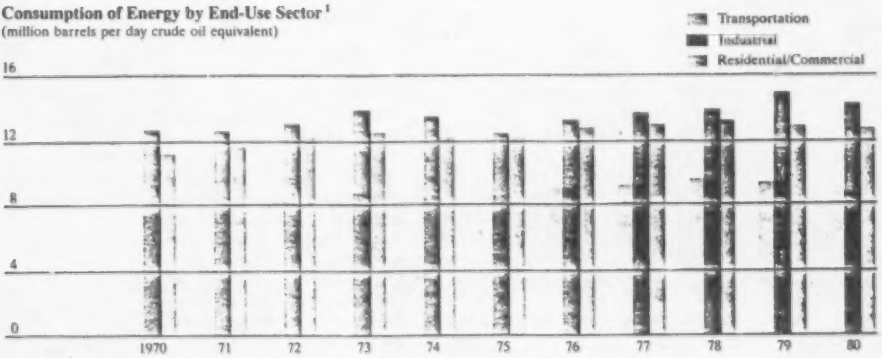
Greater efficiency—rather than reduction in driving—was the major cause of recent cuts in gasoline consumption, which accounts for almost 70 percent of transportation energy use. In 1980, compared with 1979:

- *Gasoline use* dropped 6.5 percent.
- *Miles driven* declined only 1 percent.

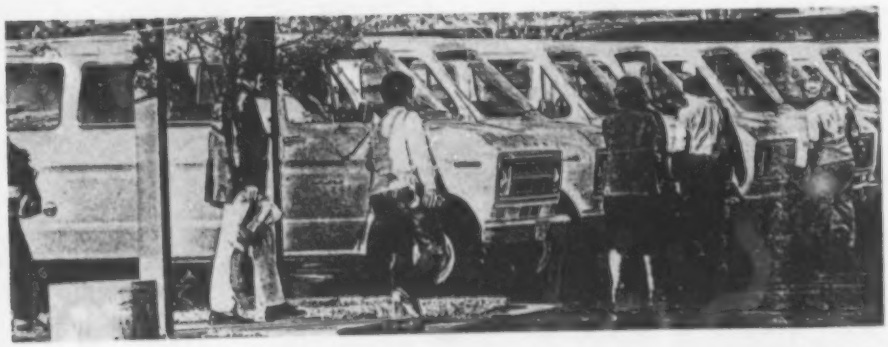
The Congressional Budget Office estimates that improvements in fuel economy since 1974 have resulted in savings of more than 700,000 barrels of oil a day in 1980. Average fuel efficiency for new passenger vehicles was:

- 14.2 miles per gallon in 1974.
- 23.4 miles per gallon in 1980.

**Consumption of Energy by End-Use Sector**[1]
(million barrels per day crude oil equivalent)




[1]Electrical energy losses distributed to consuming sectors.
Source: Department of Energy



*Participants in an energy-saving van pool program in Houston head home after work.*

Current government standards require the fuel economy of new automobiles sold in 1985 to average 27.5 miles a gallon. Automotive industry forecasts of fuel efficiency for new cars now exceed those mandates, suggesting an industry fleet average of 30 miles a gallon by 1985.

Further efficiency improvements for transportation—the sector most heavily dependent on petroleum—can make a substantial contribution to American efforts to reduce oil imports.

**Residential/Commercial Sector**

The residential and commercial sector, in which space heating accounts for about 50 percent of demand, used 3 percent less energy in 1980 than in 1978. The Bureau of the Census estimates that during the same period, more than 3 million public and private housing starts were made.

Recent gains in energy conservation were in sharp contrast to earlier trends. From 1965 to 1972, these sectors *increased* their energy use by an average of more than 5.4 percent a year. Residential and commercial users reduced consumption briefly after the Arab oil embargo brought oil price increases, but energy use began to rise again in 1976, 1977 and 1978.

However, energy efficiency increases—begun soon after the embargo—finally culminated in the 3 percent cut in energy use between 1978 and 1980—only the second period of decline in the last two decades.

For example, in 1979 (the latest year for which figures are available):

- 13 percent of new homeowners added insulation.
- Builders spent some $714 per new house on insulation (compared with $147 in 1972).

New designs for residential and commercial structures are considerably more efficient than before, according to a survey made by the American Institute of Architects (AIA) Research Corporation. Although comparable data are not available for pre-embargo times, AIA believes that new designs will produce buildings that are at least 20 percent more energy efficient than existing buildings. According to the AIA, 40 to 50 percent improvements will soon be routine.

Improved efficiency in older buildings and construction of more efficient new buildings can continue to increase in the decade ahead—bringing significant energy savings

without major changes in individual lifestyles.

**Industrial Sector**

American industry—including agriculture, construction, mining and manufacturing—decreased its total energy use by 4 percent in 1980 over 1979. Industry has made the steadiest gains in energy efficiency of any sector.

After World War II, the industrial sector was consuming almost twice as much energy as households and commercial establishments. But in 1980, industry used only about 11 percent more energy than the residential and commercial sector. This is partly because industrial energy users, who are extremely sensitive to price changes, have been working for years to cut energy costs by increasing their efficiency. A study by the National Association of Manufacturers found that the industrial sector accounted for over 60 percent of the nation's overall improvement in energy efficiency from 1973 to 1978, according to *Industry Week*.

Industrial production during the five-year period 1973–78 rose more than 12 percent, while industrial use of energy *dropped* by more than 1 percent—roughly a 13 percent overall improvement in energy productivity.

Progress for the 10 most energy-intensive industries* in the United States has been especially striking.

Between 1972 and 1979, these industries, which account for more than 90 percent of the energy purchased by U.S. manufacturers:

- *Cut energy consumption* by more than 2 percent while increasing production by 17 percent.
- *Improved efficiency* by 15 percent.

*The ten are chemicals; primary metals; petroleum and coal; stone, clay and glass; paper; food; fabricated metals; transportation equipment; machinery and textiles.

Analysts expect progress to continue, as the industrial sector invests even more in both research and capital equipment to increase energy efficiency.

**Fuel-Switching**

As noted earlier, total oil use in 1980 dropped more quickly than total energy use, chiefly because of fuel-switching. For the most part, this fuel-switching occurred when consumers found that another fuel was more economical to use than oil. Many energy users moved to coal during 1980 because of its relatively low cost and because coal producers increased production substantially over 1979.

Electric utilities were an important group of users who increased their use of coal during 1980—by almost 8 percent more than 1979. During the same period, utilities:

- Reduced their use of oil by more than 100 million barrels.
- Increased their generation of electricity by about 40 billion kilowatt-hours.

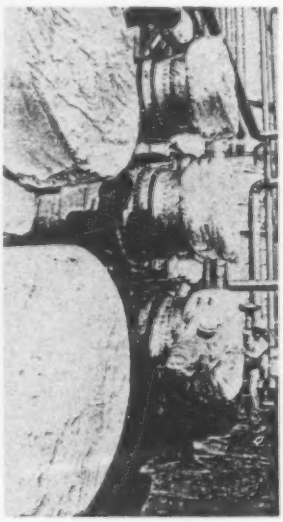
These figures show that electric utilities underwent considerable change during 1980—even though their total use of energy increased by a seemingly small amount: less than 3 percent compared with 1979.

**Outlook**

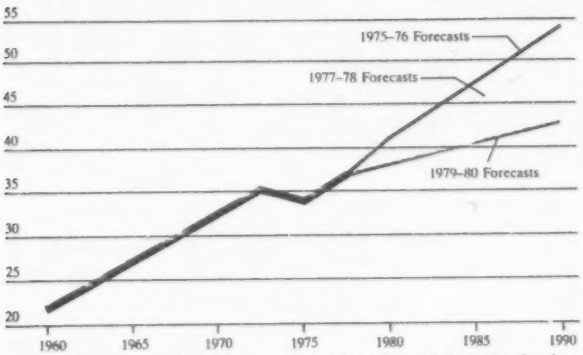
America appears to be firmly established on the path toward increased energy conservation in the 1980s.

Estimates of future U.S. energy consumption have been falling continuously since the oil embargo. Forecasts of 1980 energy consumption made in the early 1970s have turned out to be 25 percent or more *above* actual 1980 energy use—chiefly because of the unexpected price increases over the decade. Analysts who projected in the 1970s that Americans would use

*Workers at a Mississippi oil refinery adjust insulation to reduce energy loss on a "heat exchanger," which transfers heat from one fluid to another.*



**Forecasts of Energy Use**
(million barrels per day crude oil equivalent)




*This chart—based on published forecasts from government, business, industry and other sources—shows how the trend toward energy conservation has caused forecasts to drop substantially over the last few years.*

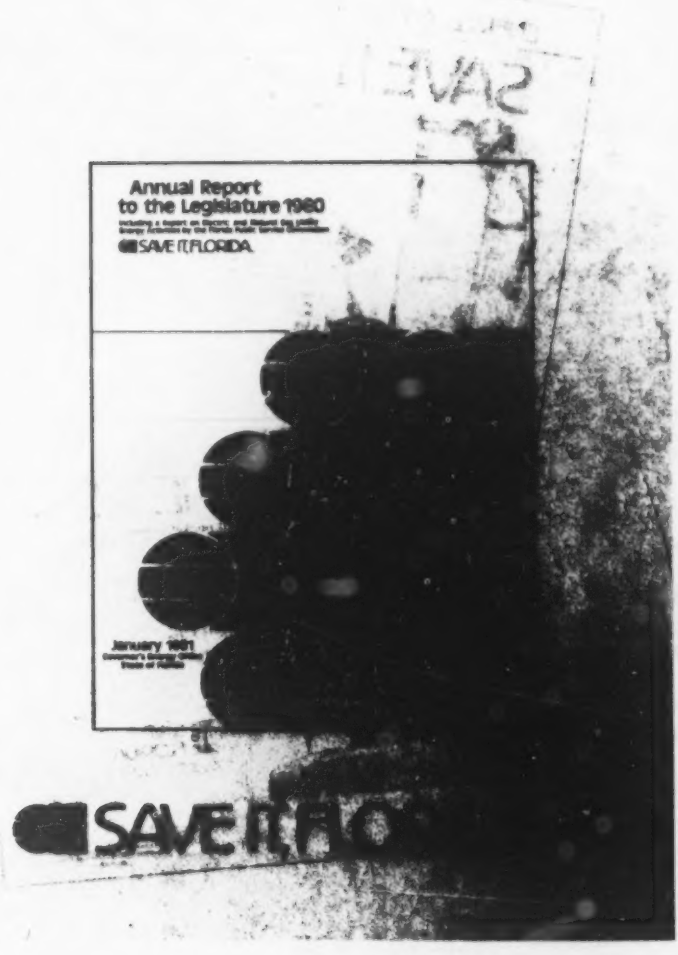
as much as 55 million barrels of oil equivalent daily in 1990 have now scaled their estimates down to as little as 40.5 million barrels a day.

Most analysts believe that energy efficiency will continue to improve for some time to come. The Department of Energy predicts that:

- Commercial buildings constructed in 1990 will be as much as 35 percent more efficient than in 1977.
- Average miles per gallon of all U.S. automobiles on the road will rise to 22.3 by 1990, from 14.3 in 1979.

Despite such continued improvement, conservation alone cannot solve the nation's energy problems. Recent energy forecasts show that, even with continued conservation, the United States will need more total energy in 1990 than in 1980. The Department of Energy projects that the nation will need the equivalent of 41.1 million barrels of oil a day in 1990, compared with actual use of the equivalent of 35.9 million barrels a day in 1980. And, as our energy use increases, oil imports will grow unless domestic energy production from all sources also increases.

However, as part of a total program to reduce oil imports—one which also relies on increased energy production—conservation *can* and *must* make a substantial contribution. Today's progress offers new hope that the United States can keep increasing energy-use efficiency throughout the 1980s—and continue to move toward the goal of reducing reliance on imported oil by half during the decade.


Annual Report
to the Legislature 1980
SAVE IT FLORIDA
January 1981
SAVE IT FLO

ENERGY IS EVERYTHING
SAVE IT AT HOME

# FOREWORD

This 1980 Annual Report of the Governor's Energy Office is submitted to the Florida Legislature in fulfillment of Section 377.703(3)(f), Florida Statutes, which requires such a report.

Part I of the report reflects the responsibilities and accomplishments of the Governor's Energy Office during 1980, presents a brief statistical summary of the energy situation in the State, shows the organizational structure of and funding for the Energy Office, and provides a general statement regarding recommendations for improvement of the State's energy programs and policies.

Part II is a report from the Public Service Commission on electricity and natural gas activities during 1980. This report is required, by statute, to be included with the report of the Governor's Energy Office.

SAVE IT, FLORIDA.

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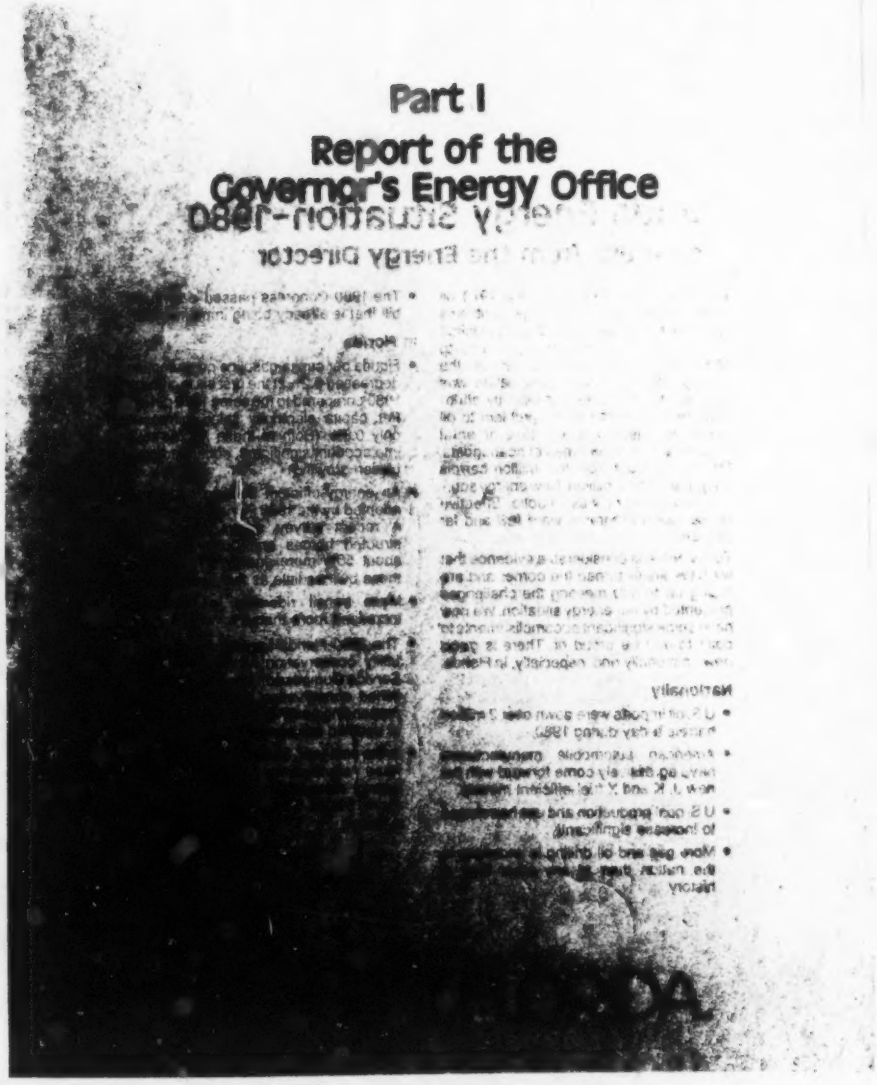
# Part I

# Report of the Governor's Energy Office



# Florida Energy Situation–1980

## Statement from the Energy Director

The creation of OPEC and the 1973 oil embargo precipitated energy problems and raised energy issues that the United States and Florida were not prepared to deal with. Public acceptance of the seriousness of the energy situation was lacking. National polls consistently attributed the root cause of the problem to oil company manipulation, governmental ineptness, and other types of scapegoats. Oil imports went from five million barrels daily to over nine million. New energy source development was chaotic. Effective conservation programs were few and far between.

Today, there is considerable evidence that we have finally turned the corner and are facing up to and meeting the challenges presented by our energy situation. We now have some significant accomplishments to point to and be proud of. There is *good news* nationally and, especially, in Florida.

Nationally

- The 1980 Congress passed a synfuels bill that is already being implemented.

In Florida

- Florida per capita gasoline consumption decreased 5.2% in the first six months of 1980 compared to the same 1979 period. Per capita electricity sales increased only 0.8%. (Both of these figures take into account significant, continued population growth.)
- An energy-efficient building code was adopted by the 1980 Florida Legislature. A recent survey shows newly constructed homes and buildings to be about 50% more energy-efficient than those built as little as five years ago.
- Mass transit ridership in the State increased more than 9% in 1979.
- The 1980 Florida Legislature passed a utility conservation bill, and the Public Service Commission has already established conservation goals. Utilities are responding positively with a wide variety of specific conservation programs.
- In the past year, State agencies in Florida have significantly further reduced energy consumption in public facilities (from 5% to 27%, depending on the agency).

- Gasohol is now widely available in Florida. Data for the month of August showed gasohol sales of 2,016,360 gallons.
- Tax exemption incentives for gasohol, solar systems and other types of energy-efficient equipment were included in legislation passed in 1980. A statewide constitutional amendment referendum on property tax exemptions for renewable energy source devices, such as solar systems, was overwhelmingly approved by the public.
- The 1980 Florida Legislature approved creation of an Energy Research and Development Task Force to stimulate new energy ideas.
- There has been a significant increase in energy conservation retrofits and solar applications throughout the State.
- Florida Power & Light Company has conducted a successful coal-oil mix test burn at their Sanford plant.
- All Florida utilities are offering home energy audits to their residential customer.
- A large number of innovative energy projects are underway in the State, including:
  - the City of Tomorrow (EPCOT) at Disney World;
  - a large solar project at Sea World;
  - an electric co-generation project, using electricity produced by U.S. Sugar Corporation from sugar cane byproducts;
  - resource recovery plants, in Dade and Pinellas Counties, that convert garbage to steam and electricity;
  - a great many ridesharing projects in both the public and private sectors;
  - biomass projects at State facilities (Florida State Hospital in Chattahoochee and the Union Correctional Institution); and
  - private projects utilizing biomass at paper mills and other industrial facilities.

The above list is by no means all-inclusive, but it is indicative of the widespread interest in a positive response to our national and State energy problems. If we continue to build on these positive initiatives, we can turn today's energy crisis into tomorrow's proud achievements.

L. A. Hester
Energy Director

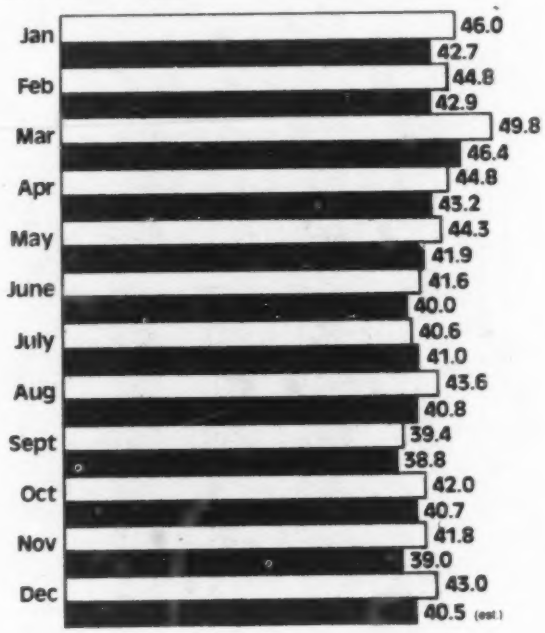
## Florida Energy Situation

### Monthly Per Capita Gasoline Sales

□ 1979 and 1980 ■

(In Gallons)

Monthly per capita gasoline sales in 1980 were lower than the same 1979 months except for July. Gasoline sales in July 1979 were lower than normal due to the shortage situation aggravated by the truckers' strike.

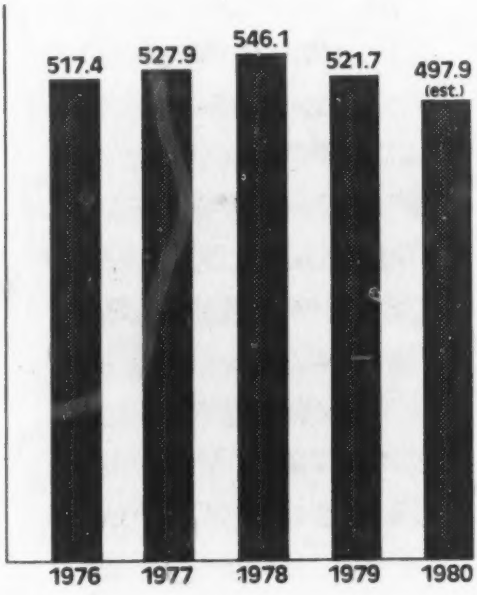


## Florida Energy Situation

# Yearly Per Capita Gasoline Sales 1976-1980

(In Gallons)

Per capita gasoline sales started on a downward trend in 1979. This trend continued throughout 1980.



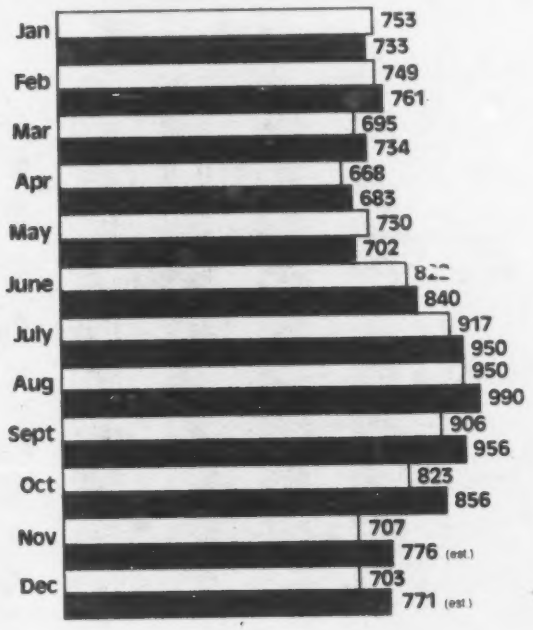
## Florida Energy Situation

# Monthly Per Capita Electricity Sales

□ 1979 and 1980 ■

(In Kilowatt-Hours)

During the first six months of 1980, per capita electricity sales increased only 0.8% compared to the same 1979 period. The rate of increase was higher during the last six months of 1980, partly due to severe weather conditions.

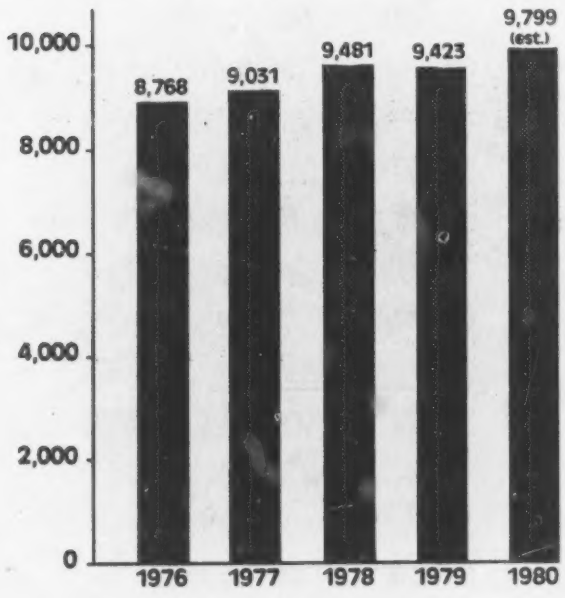


## Florida Energy Situation

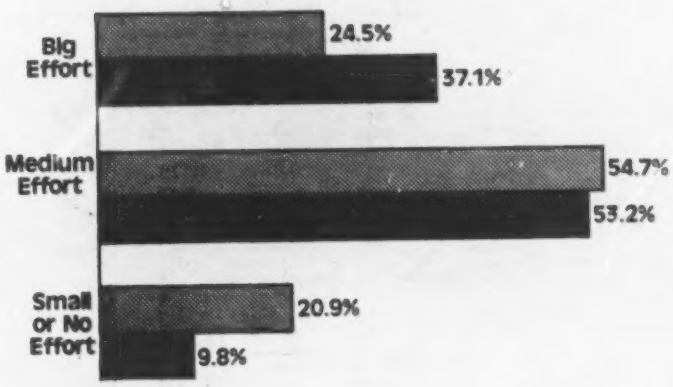
# Yearly Per Capita Electricity Sales 1976–1980

(In Kilowatt-Hours)

Per capita sales increased slightly in 1980 after remaining steady in 1979. The increase can be partly attributed to the extremely hot temperatures experienced in the State during the July–September period and lower than normal temperatures in November and December.



## Types of Efforts Floridians are Making to Reduce Energy Use* 1979 and 1980




* From "Florida, Energy and You" surveys conducted by the Institute of Food and Agricultural Science, University of Florida, 1979 and 1980. Partially funded by the Governor's Energy Office.

## Florida's Energy Situation

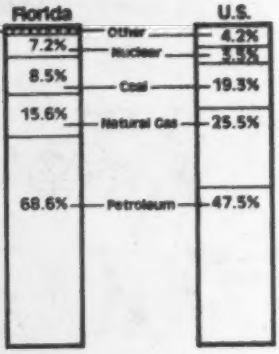
# Percentage of Total Energy Consumption by Primary Energy Source

Florida & the U.S., 1979

In 1979, the State depended on petroleum and natural gas for almost 85 percent of its energy needs; petroleum constituted 68.6 percent of the total consumption of primary energy. This contrasted with the United States as a whole, which used petroleum and natural gas for approximately 70 percent of its energy needs, with less than 50 percent of primary energy consumption being petroleum.

**Total Consumption:**

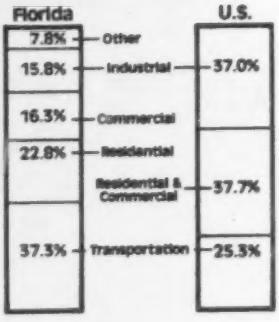
**Florida ..... 2,289.3 trillion BTU**
**U.S. ..... 78,020.0 trillion BTU**




# Percentage of Total Energy Consumption by Sector

Florida and the U.S., 1979

The consumption of energy in Florida differs from that of the country as a whole. The transportation sector is the largest energy consuming sector in the State. In 1979, transportation accounted for 37.3 percent of energy use in Florida, but only 25.3 percent of the nation's. While 37 percent of the country's total energy consumption was in the industrial sector, industry accounted for only 16 percent of energy use in Florida.



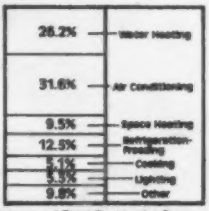
# Residential End Uses of Energy in Florida

Air conditioning and water heating are the top energy consumers in Florida homes; these uses consume a much higher percentage of total residential energy than in other states. Conversely, heating of Florida homes uses far less energy than the national average for heating.

**Total Residential Energy Consumption**

**1979 ..... 522.1 trillion BTU**

*Other includes: clothes drying, television, miscellaneous.



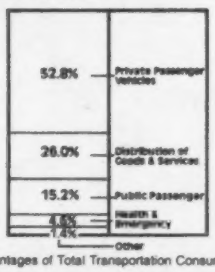

(Percentages of Total Residential Consumption)

# Transportation End Uses of Energy in Florida

More than half of all energy consumed for transportation in Florida fuels private passenger vehicles. Slightly over one-fourth of transportation energy consumption is devoted to distribution of goods and services (primarily via truck and rail). The bulk of public passenger transport in Florida is airline traffic; buses account for less than 1 percent of petroleum use in the transportation sector.

**Total Transportation Energy Consumption**

**1979 ..... 854.8 trillion BTU**




(Percentages of Total Transportation Consumption)

# Primary Energy Consumption Per Capita

Primarily because there is relatively little heavy industry in Florida, the State's per capita energy consumption is lower than in the country as a whole. Since 1960, however, Floridians have increased their use of energy at a faster rate than the national average. But, in 1979, energy use was lower than in 1978—246.3 million BTU compared to 250.3 million BTU.

| | Per Capita Energy Consumption (million BTU) | | | |
|---|---|---|---|---|
| | 1960 | 1979 | | |
| Florida | 144.9 | 246.3 | 70.1 | 1.7 |
| U.S. | 343.0 | 334.9 | 46.5 | 1.5 |

Florida and the U.S., 1979

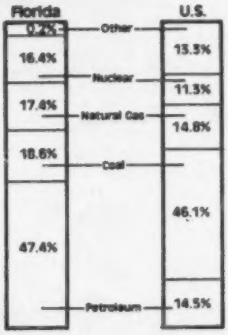
# Percentage of Net Electric Generation by Fuel Type

Florida and the U.S., 1979

A comparison of net electric generation by fuel type shows that 47.4 percent of electricity used in Florida is generated from petroleum; only 14.5 percent of the electricity for the country as a whole is generated from this fuel.

**Total Electric Generation Fuel Consumption:**

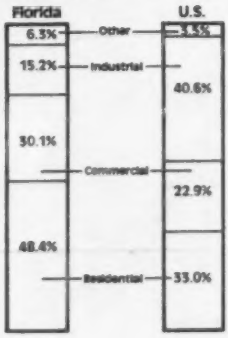
**Florida ..... 998.1 trillion BTU**
**U.S. ..... 24,340.0 trillion BTU**




# Percentage of Sales of Electricity to Ultimate Customers by Class of Service

Florida and the U.S., 1979

Statistics on sales to customers by class of service demonstrate that almost 48.4 percent of the electricity sold in Florida is for residential use, compared to a national average of 33.0 percent.



## Florida Energy Situation

# 1990 Projections

The projected energy "supply" and "demand" tables on the following page are estimates of: (1) the amount of energy that will be available for Florida consumption in 1990 at then prevailing prices; and (2) the quantity of energy that will be demanded by Florida consumers in 1990, assuming constant per capita consumption at the 1978 level. ***The tables are not supply or demand schedules; they do not present a relationship between price and quantity in specified time periods.***

Florida's total energy "supply" is projected to be 2,616.6 trillion BTU in 1990. The quantity of energy demanded, assuming constant per capita consumption at 1978 levels, is projected to increase to 2,966.7 trillion BTU in 1990. The tables show these "supply" and "demand" projections by sector and by fuel type. No assumption is made regarding the impact of real energy price increases on the demand for energy, nor are there any allowances made for replacement of present energy sources by solar and other new techniques based on power sources that are not priced. Under these circumstances and assumptions, then, the quantity of energy demanded may exceed the amount actually available for consumption by 350.1 trillion BTU.



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## Projected "Supply" of Energy by Sector: 1990*
## State of Florida

(in trillion BTU)

| | Residential | Commercial | Industrial | Transportation | Governmental | Other | Total |
|---|---|---|---|---|---|---|---|
| Petroleum | 17.9 | 26.3 | 15.8 | 916.6 | 7.9 | 50.0 | 1034.5 |
| Natural Gas | 24.0 | 31.2 | 76.5 | 1.2 | 9.2 | 28.1 | 170.2 |
| Coal | 0.0 | 0.0 | 103.0 | 0.0 | 0.0 | 0.0 | 103.0 |
| Total Primary "Supply" | 41.9 | 57.5 | 195.3 | 917.8 | 17.1 | 78.1 | 1307.7 |
| Electricity "Supply" | 188.0 | 116.5 | 56.2 | 0.0 | 24.3 | 0.0 | 385.0 |
| Electrical Losses | 451.8 | 279.5 | 134.9 | 0.0 | 58.4 | 0.0 | 923.9 |
| Total Electric "Supply" | 639.1 | 396.0 | 191.1 | 0.0 | 82.7 | 0.0 | 1308.9 |
| TOTAL "SUPPLY" | 681.0 | 453.5 | 386.4 | 917.8 | 99.8 | 78.1 | 2616.6 |

*Assumptions: Florida's share of each fuel type will remain constant at its historic percentage level, except that projected declines in industrial and electrical utility petroleum use are assumed to be replaced by equivalent BTU increases in coal use.

The utility projection assumes constant per capita electricity consumption, so that the amount of electricity supplied grows at the same rate as Florida's population.

## Projected "Demand" for Energy by Sector: 1990*
## State of Florida

(in trillion BTU)

| | Residential | Commercial | Industrial | Transportation | Governmental | Other | Total |
|---|---|---|---|---|---|---|---|
| Petroleum | 29.7 | 56.0 | 147.4 | 1139.7 | 20.7 | 63.2 | 1456.7 |
| Natural Gas | 29.9 | 37.8 | 103.5 | 1.8 | 11.1 | 37.8 | 221.7 |
| Coal | 0.0 | 0.0 | 9.4 | 0.0 | 0.0 | 0.0 | 9.4 |
| Total Primary "Demand" | 59.6 | 93.8 | 260.3 | 1141.3 | 31.8 | 101.0 | 1687.8 |
| Electricity "Demand" | 188.0 | 116.5 | 56.2 | 0.0 | 24.3 | 0.0 | 385.0 |
| Electrical Losses | 451.1 | 279.5 | 134.9 | 0.0 | 58.4 | 0.0 | 923.9 |
| Total Electric "Demand" | 639.1 | 396.0 | 191.1 | 0.0 | 82.7 | 0.0 | 1308.9 |
| TOTAL "DEMAND" | 698.7 | 489.8 | 451.4 | 1141.3 | 114.5 | 101.0 | 2996.7 |

*Assumptions: Constant per capita consumption at the 1978 level (250.3 million BTU) and constant population growth of 2.4% per year.

# Governor's Energy Office

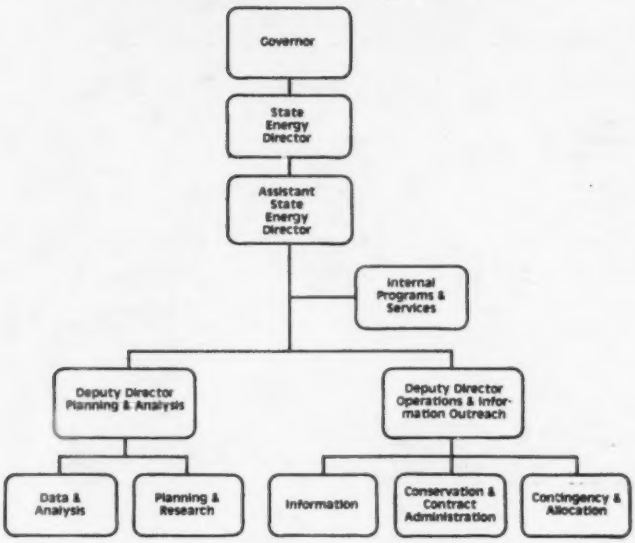
## Organization and Funding

As indicated on the organization chart on the following page, the Governor's Energy Office is divided into two major sections: (1) Operations and Information Outreach, and (2) Planning and Analysis. An Internal Programs and Services Section, working under the direction of the Assistant State Energy Director, provides administrative and general support for all Energy Office programs.

A staff of 67 full-time, permanent employees carries out the responsibilities assigned by the Governor. A breakdown of the staff by position title follows the organization chart. A list of program contacts, with telephone numbers, is included on pages 18 and 19.

Approximately 90 percent of the funding for the operational, contractual, and pass-through expenditures of the Governor's Energy Office during calendar year 1980 came from U.S. Department of Energy grants. State general revenue funds provided the majority of the remainder. A list of sources of funding, with amounts expended and obligated during the year, appears on page 20.

# Organization Chart
# Governor's Energy Office



# Summary of Governor's Energy Office Permanent Employees by Position Title

| | |
|---|---|
| State Energy Director | 1 |
| Assistant State Energy Director | 1 |
| Deputy Director for Operations & Information Outreach | 1 |
| Deputy Director for Planning & Analysis | 1 |
| Senior Governmental Analyst | 6 |
| Governmental Analyst III | 12 |
| Governmental Analyst II | 16 |
| Governmental Analyst I | 11 |
| Information Specialist II | 1 |
| Administrative Assistant II | 1 |
| Executive Secretary I | 1 |
| Staff Assistant I | 2 |
| Secretary IV | 3 |
| Word Processing Systems Operator I | 1 |
| Secretary III | 7 |
| Secretary II | 1 |
| Clerk Typist III | 1 |
| Total | 67 |

# Organization
# Governor's Energy Office
## Staff Referrals

### Administrative Staff

| | | |
|---|---|---|
| State Energy Director | L. A. (Lex) Hester | (904) 488-6764 |
| -Executive Secretary | Charlotte Lavette | " |
| Assistant State Energy Director | James A. Harvey | " |
| -Secretary | Emily Cook | " |
| Deputy Director for Operations & Information Outreach | Fernando Recio | (904) 488-2475 |
| -Secretary | Ann Smith | " |
| Deputy Director for Planning & Analysis | Helge R. Swanson | (904) 488-6148 |
| -Secretary | Miriam Baldwin | " |
| Internal Programs & Services Coordinator | Jimmie C. (Jim) Cooper | (904) 488-6764 |
| -Administrative Assistant | Kathleen Conner | " |
| -Secretary | Lee Vecchioli | " |

## Organization

## Program Contacts

| | | |
|---|---|---|
| Agricultural Energy Conservation | Hank Erikson | (904) 488-2475 |
| Allocation of Petroleum Fuels | William Goode, Damon Agee | (904) 488-5623 |
| Allocation Data | William Goode | " |
| A-95/State Clearinghouse Review | Marcia Elder | (904) 488-6146 |
| Appropriate Technology Small Grants Program | Warren Williams | " |
| Building Codes | Phil Bower, Ann Stanton | (904) 488-2475 |
| Business/Industry Conservation Programs | Bill Kennedy | " |
| Coal Slurry Pipeline Study | Marcia Elder | (904) 488-6146 |
| Conservation Programs | Jim Mengel | (904) 488-2475 |
| Consumption of Energy (See Data Collection & Analysis) | | |
| Contingency Planning | Dale Walker | (904) 488-6146 |
| County Energy Information Centers | Bill Kennedy | (904) 488-2475 |
| Data Collection & Analysis<br>-Consumption of Energy<br>-Sources of Energy<br>-Evaluation of Energy Savings<br>-Gasoline Consumption<br>-Forecasts of Supply & Demand | Will Kirksay | (904) 488-6146 |
| Education (See Schools & Colleges Energy Education Program) | | |
| Emergency Building Temperature Restrictions Program | Sharon Gilmore | (904) 488-6143 |
| Energy Emergency Contingency Plan (See Contingency Planning) | | |
| Energy Extension Service | Bill Kennedy | (904) 488-2475 |
| Evaluation of Energy Savings (See Data Collection & Analysis) | | |
| Federal Grants Coordination | Fam Miller | (904) 488-6764 |
| Forecasts of Energy Supply & Demand (See Data Collection & Analysis) | | |
| Gasoline Consumption Data (See Data Collection & Analysis) | | |
| Governor's Energy Partners | Andrew Pace | (904) 488-3121 |

## Organization

## Program Contacts

| | | |
|---|---|---|
| Library/Media Center | Martha Bentley | (904) 488-6143 |
| Local Energy Action Programs (LEAP) | Dawn Tucci | (904) 488-6146 |
| Local Government Conservation Programs | Jim Jackson | (904) 488-7400 |
| Low-level Nuclear Waste Study | Marcia Elder | (904) 488-6146 |
| Media Contact | Andrew Pace | (904) 488-3121 |
| Newsletter | Mary Lou Stursa | (904) 488-6143 |
| Planning Programs | Marcia Elder | (904) 488-6146 |
| Policy Analysis | Marcia Elder | " |
| Publications (Inventory & Distribution) | Martha Bentley | (904) 488-6143 |
| Regional Planning Councils | Jim Jackson | (904) 488-7400 |
| Research & Development Program | Doug Roberts | (904) 488-6143 |
| Residential Conservation | Ann Stanton | (904) 488-2475 |
| Schools & Colleges Energy Education Program | Rosalyn Tillis | (904) 488-6143 |
| Schools & Colleges Energy Management Program | Tom Barnum | (904) 488-7400 |
| Schools/Hospitals/Local Government/Public Care Institutions Grant Program | Harold Gelnaw, Woody Darden | (904) 488-2475 |
| Sources of Energy (See Data Collection & Analysis) | | |
| State Energy Conservation Plan Development (1981 plan) | Loretta Bussierre | (904) 488-6143 |
| State Government Conservation Programs | Jim Stephens | (904) 488-7400 |
| State Set-Aside Program | William Goode, Damon Agee | (904) 488-5623 |
| Statistics (See Data Collection & Analysis) | | |
| Temperature Restrictions (See Emergency Building Temperature Restrictions Program) | | |
| Transportation Conservation Programs | Norman Feder | (904) 488-2475 |
| Utility Fuels Alternatives Study | Will Kirksey | (904) 488-6146 |

# Funding

## Governor's Energy Office
## Funding Sources and Expenditures
## Calendar Year 1980

| FUNDING SOURCE | TOTAL AVAILABLE[1] | EXPENDITURES/ OBLIGATIONS |
|---|---|---|
| **FEDERAL FUNDS** | | |
| **1. U.S. Dept. of Energy** | | |
| State Energy Conservation Plan | $2,659,800 | $2,231,700 |
| EPCA Implementation Funds | 670,600 | 438,570 |
| EPCA Implementation Funds | 698,900 | 427,200 |
| Energy Extension Service | | |
| Institutional Building Grants Administration & Pass Through Funds | 1,496,518 | 614,755 |
| Appropriate Technology Small Grants Program | 37,475 | 27,100 |
| Emergency Building Temperature Restrictions Program | 259,400 | 184,100 |
| Public Awareness Grant | 201,624 | 165,750 |
| Building Energy Performance Standards | 160,800 | 114,900 |
| Energy Supply Management Simulation Test | 10,000 | -0- |
| State Set-Aside Automated MIS | 20,000 | -0- |
| Small-Scale Hydropower Resource Assessment | 2,429 | 2,429 |
| Energy and Resource Conservation Awareness | 10,000 | -0- |
| **2. Other Federal Agencies** | | |
| Economic Development Administration | 22,982 | 4,100 |
| **OTHER GRANTS & CONTRACTS** | | |
| **1. Public Service Commission** | 5,026 | 5,026 |
| **2. Union Carbide Corporation** | 500 | 500 |
| **GENERAL REVENUE** | 530,200 | 530,200 |
| **TOTAL** | $6,786,254 | $4,746,330 |

[1] Carry-over funds and new grants.

# Responsibilities/ Accomplishments

## Responsibilities Assigned to The Governor's Energy Office

In this 1980 Annual Report to the Florida Legislature, an effort has been made to present the activities and accomplishments of the Governor's Energy Office in direct response to the statutory responsibilities assigned. However, since many of the responsibilities are interrelated, the accomplishments are included under the category believed to be most relevant. For instance, the development of the *Transportation Energy Efficiency Manual* (TEEM) is included under "conservation in transportation"; it could also have been listed under "local government coordination".

The four major priorities of the Governor's Energy Office are:

1. to reduce statewide per capita energy use by 25 percent by the year 1990;
2. to reduce State government energy consumption by 15 percent or more;
3. to develop and increase the utilization of alternative energy resources, such as solar and biomass energy;
4. to pepare energy emergency plans that will allow the State to act effectively in the event of energy supply shortages and/or disruptions.

The activities and accomplishments of the Governor's Energy Office during 1980 reflect these priorities, which closely track the responsibilities assigned by statute.

## Responsibility

Collect data and prepare reports on the extraction, production, importation, exportation, refinement, transportation, storage, sale, or reserves of energy resources in the State. s.377.603,F.S.

## 1980 Accomplishments

- Collected and prepared data on monthly electricity sales, gasoline sales, and speeding citations issued by the Florida Highway Patrol for use in the Florida Energy Report Card.
- Completed the data collection required to prepare forecasts of energy supply and demand, and completed first draft of a trendline forecast.
- Prepared a report on monthly motor gasoline consumption at the State, county, regional, and SMSA levels for the years 1971-1979.
- Initiated a survey to determine the address and telephone number of each major petroleum water terminal as well as the types of products stored at each terminal and the estimated storage capacity at each terminal of each prime supplier of petroleum serving Florida.
- Compiled and analyzed Florida energy consumption data and presented this data in a format to assist allocation functions.
- Prepared routine reports on supply situation of petroleum prime suppliers within the State and reports on State hardship cases written by Allocation Section. These reports were prepared on an on-going basis utilizing the existing computerized allocation management system.
- Initiated a survey to determine the names, addresses, telephone numbers, and contact persons for all distributors, jobbers, and/or consignees of each prime supplier of petroleum serving Florida.
- Initiated work on a comprehensive energy data base involving collection, on a routine basis, and preparing data on the extraction, production, importation, exportation, transportation, refinement, transmission, conversion, storage, sales, and reserves in Florida, the United States, and the world. This data was collected from all known existing sources. Emphasis was placed on petroleum, natural gas, coal, hydro-electric, and nuclear sources. Unprepared data was collected, as required, by survey or other devices. This data was either published in report format or was distributed as required or requested.

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## Responsibility

Assume the State's role in petroleum allocation and conservation, including the development of a fair and equitable petroleum plan. Perform the functions of any federal program delegated to the State which relates to petroleum supply, demand, and allocation. ss.377.701(1), F.S.

## 1980 Accomplishments

- Administered the distribution of the monthly State set-aside of petroleum products totaling during 1980 approximately 245 million gallons of gasoline, 50 million gallons of middle distillates, and 9.5 million gallons of propane.
- Florida experienced a severe gasoline shortage during the winter months of 1979-80. This shortage necessitated an emergency State set-aside release of 12.3 million gallons of gasoline in February to effect relief for the 17 southern coastal counties most seriously impacted by the shortage.

- Maintained the on-going training program for the four Area Fuel Allocation Coordinators and the sixty-seven County Fuel Allocation Officers who assist the State with the allocation program. The training included training seminars in each of Florida's four disaster preparedness areas.
- Prepared monthly a "Petroleum Situation" report (100 copies) which estimates the forthcoming month's petroleum supplies and provides detailed historical consumption figures of the allocated petroleum fuels. Distributed to Executive Office of the Governor, Area Fuel Allocation Coordinators, County Fuel Allocation Officers, and limited governmental and public interests.
- Prepared a training pamphlet for County Fuel Allocation Officers titled ***Administration of State Set-Aside and Other Federal Mandatory Petroleum Allocation Program Activities***. Distribution limited to Governor's Office, Area Fuel Allocation Coordinators, County Fuel Allocation Officers, and limited governmental and public interests.

## Responsibility

Coordinate efforts to seek federal support for State energy activities, including energy conservation, research, or development, and be the State agency responsible for the coordination of multiagency energy conservation programs. ss.377.703(3)(d), F.S.

## 1980 Accomplishments

- Sought funding assistance for select Florida-based energy programs and activities, including: energy research and development projects as identified by the Florida Energy Research and Development Task Force; community-based conservation programs patterned after Local Energy Action Programs (LEAP) pilots conducted in Tallahassee and Gainesville; a study of the potential for and means of promoting renewable energy industries in Florida; a program to promote biomass fuels and other renewable energy sources in Florida (new program underway); a study of problems and needs relative to the management of Florida's low-level nuclear wastes (U.S. Department of Energy funding awarded); and others.
- General coordination with pertinent federal agencies and national organizations including the Florida-Washington Office, National Governor's Association, Southern States Energy Board, Southern Solar Energy Center, National Association of State Legislatures, and others.
- Worked with the Department of Community Affairs on Weatherization Plan for inclusion in the Coordinated State Grants Program Plan.
- Worked with Metropolitan Dade County Transportation Office to submit a proposal for federal funding in response to federal Requests for Proposal (RFP) for "Demonstration project to incorporate energy conservation in the transportation planning and decision making process."
- Worked with the Department of Education and the Department of Health and Rehabilitative Services to provide maximum benefit to State-supported facilities under the Institutional Buildings Grant Programs.

## Responsibility

Analyze energy data collected and prepare long-range forecasts of energy supply and demand. ss.377.703(3)(e), F.S.

## 1980 Accomplishments

- Prepared projections of energy consumption in Florida under four scenarios for the years 1985, 1990, 1995, and 2000.
- Participated in a series of Revenue Estimating Conferences with other State executive agencies and legislative staff; prepared forecasts of motor fuel availability for each year through 1990 to aid in estimating revenue expected from the motor fuel tax. Also prepared detailed background papers on supply forecasting, physical limitations of conventional fuels, and time required for development of alternatives.
- Assembled and analyzed monthly the estimated volumes of allocation petroleum fuels (propane, motor gasoline, middle distillates) being introduced into the State, and from this short-range forecast made the determinations on how the State set-aside would be distributed.

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## Responsibility

Perform or coordinate the functions of any federal energy programs delegated to the State, including energy supply, demand, conservation, or allocation. ss.307.703(3)(b), F.S.

## 1980 Accomplishments

- Continued to administer the State Energy Conservation Plan (SECP) as required by the Energy Policy and Conservation Act of 1975 and the Energy Conservation and Production Act of 1976. Collected data for the Energy Savings Report (DOE-U535-A-O) detailing savings achieved as a result of selected programs.
- The U.S. Department of Energy selected Florida as the national pilot for the Coordinated States Grants Program. Florida will be the only state with a coordinated grants application for 1981.
- Developed and administered Florida's Appropriate Technology Small Grants Program. (Energy Research and Development Administration Appropriations and Authorization Act of 1977.)
- Developed and began implementation of Alternative Energy Resources Biomass Fuels Program as funded by the Economic Development Administration.
- Conducted assessments of potential energy outputs from Florida's hydropower and peat resources for the U.S. Department of Energy.
- Participated in a pilot program to test a federal information system designed to manage the fuel allocation set-aside. Florida was requested to participate in this program since it is one of the few states to have a computerized allocation management system in operation.
- Managed the State set-aside program delegated to the State by the Emergency Petroleum Act of 1973, as amended.
- Developed and administered the Florida Energy Extension Service Program authorized by the Energy Extension Service Act of 1977.
- Developed the State Residential Conservation Plan for immediate implementation by the Public Service Commission and the Department of Agriculture and Consumer Services. (Federal program mandated by the National Energy Conservation Policy Act of 1978, governing how select utilities will provide home energy audits.)
- Continued to administer Cycles I and II of the Institutional Buildings Grant Program under the National Energy Conservation Policy Act of 1978.

- Carried out inspections and promoted compliance with the federal Emergency Building Temperature Restrictions Program.
- Under a special U.S. Department of Energy grant, developed and initiated a statewide mass media campaign combining State efforts with those of the private sector to promote energy awareness and conservation.
- Initiated, under a special U.S. Department of Energy grant, an investigation of the consistency of the Florida Energy Efficiency Code for Building Construction with proposed federal Building Energy Performance Standards.

## Responsibility

Assume the responsibility for the development of an energy emergency contingency plan to respond to serious shortages of primary and secondary energy sources. ss.377.703(3)(a), F.S.

## 1980 Accomplishments

- Prepared a revised Florida Energy Emergency Contingency Plan which anticipates a wide range of potential energy contingencies and provides an orderly process for responding to and managing specific energy issues and emergency situations.
- Held a series of public meetings around the State to receive comment regarding the Interim Florida Energy Emergency Contingency Plan, and revised the plan based on those meetings.
- Prepared analysis and implementation details of several emergency energy conservation measures that would be ordered in the event of a severe energy emergency.
- Managed a Board of Regents STAR grant with the College of Engineering, University of Florida, to analyze energy emergency measures.
- Prepared a model local government energy emergency response plan outline; worked with representatives of counties, cities, regional planning councils and selected State agencies to begin local government energy emergency planning.
- Initiated work on a model energy emergency response plan for private-sector employers (to be completed in 1981).
- As part of the Emergency Data Base Management System, initiated a task force to collect energy data required to administer the implementation of the Energy Emergency Contingency Plan.
- Began development of a State agency emergency information system.
- Completed a computer tie-in with a federal information system to provide information and high speed communication in the event of a national energy emergency. Participated in an extensive system test that included a simulated emergency.
- Prepared a proposal to allow Florida to receive federal funding to develop a State plan for administration of the State Ration Reserve, in the event that gasoline rationing is imposed by the President to implement Title I of Energy Emergency Contingency Act of 1979.

## Responsibility

Analyze present and proposed federal energy programs and recommend the State's position. ss.377.703(3)(c), F.S.

## 1980 Accomplishments

- Reviewed and commented on proposed federal rules and regulations on energy-related programs, including draft U.S. Department of Energy (DOE) rules on the Appropriate Technology, Coordinated State Grants, and Building Efficiency Performance Standards (BEPS) programs; draft Farmers Home Administration regulations on loan guarantees for alcohol fuel production facilities; draft Federal Energy Regulatory Commission (FERC) rules on consumer participation in federal proceedings.
- Reviewed and commented on proposed National Governor's Association (NGA) position on the management of low-level nuclear waste.
- Assisted Florida-Washington Office in review of select federal programs and legislative issues (e.g., nuclear waste, coal slurry pipelines).
- Reviewed and analyzed proposed energy management information systems, emergency gasoline targets, and other energy data-related programs and made recommendations for revision.
- Reviewed rules proposed by the DOE governing distribution of funds for energy emergency planning, and worked in conjunction with the NGA to recommend modifications.
- Reviewed U.S. DOE proposed rules on consumer information and provided comment.
- Reviewed and provided comment on U.S. DOE's proposed rules relative to Motor Gasoline Allocation Revision, Reporting Form on State Set-Aside, Gasohol Pricing and Allocation, Motor Gasoline Allocation, Adjustments and Downward Certification, and Designing Methods for Distributing Petroleum During a Shortage and Selecting Standby Distribution Mechanisms.
- Reviewed U.S. Department of Transportation rules to require energy conservation as a component of transportation planning (response to Executive Order 12185) and are in the process of working with the Federal Highway Administration, the Florida Department of Transportation, and the Metropolitan Planning Organizations to establish procedures to implement the new rules in Florida.
- Reviewed HR7688 which could amend the Federal Revenue Code to provide home builders with a tax rebate for installing passive solar heaters in new construction. Recommended that the State support the bill and drafted letter for Governor's signature informing key members of Congressional delegation of our support.
- Reviewed U.S. DOE's proposed auditor training program. Recommended that we take advantage of the program if the Public Service Commission does not and sent letter to the PSC regarding their intentions toward the program.

## Responsibility

Make any rules or regulations, pursuant to Chapter 120, Florida Statutes, as are necessary to carry out the purposes of this statute. ss.377.703(3)(g), F.S.

## 1980 Accomplishments

- Developed a rule for the "Distribution of State Set-Aside of Petroleum Products" (Chapter 27C-1, Florida Administrative Code).
- Conducted public meetings on the set-aside rule and publicly announced the proposed adoption of the set-aside rule as part of the necessary procedures required for promulgation of a rule.

- Initiated preparation of a draft rule to govern adminstration of a State Gasoline Ration Reserve, in the event of gasoline rationing. The rule is to be promulgated during 1981.
- Participated with the Public Service Commission in developing rules for the Residential Conservation Service Program (utility audits for residential customers).

## Responsibility

Promote energy conservation in all energy use sectors throughout the State, and constitute the State agency primarily responsible for this function. ss.377.703(3)(h).

## 1980 Accomplishments

### Transportation

- In coordination with the Florida Department of Transportation and the Department of General Services, established the Capitol Center Ridesharing Project which computer-matched over 5,000 State employees in the Tallahassee/Leon area for carpools or vanpools.
- Conducted surveys and assisted in promotion of the State Ridesharing Program. Worked with the Department of Health and Rehabilitative Services to develop and establish ridesharing programs at rural State facilities.
- Established an interagency agreement with the Florida Department of Transportation to promote energy conservation in their planning and operations for the State system. Assisted in the development of that department's Energy Conservation Plan and Policy Statement.
- Developed, through a contract with a consultant, a ***Transportation Energy Efficiency Manual*** (TEEM) to provide local governments with state-of-the-art information on programs, techniques, and procedures for energy conservation and efficiency in transportation. Worked with the Metropolitan Planning Organizations (MPOs) to network the TEEM into their transportation planning and decision-making processes.
- Provided public information, developed informational brochures, and coordinated with other agencies to assist the public in saving fuel and money through energy-efficient transportation habits.
- Provided instructional materials and programs to agencies and groups throughout the State to promote energy conservation and efficiency in transportation.

### Building Construction

- Prepared, published, and distributed the ***Florida Model Energy Efficiency Code for Building Construction***. The code contains Florida-specific standards for residential and non-residential construction for use by builders and building officials.
- Prepared draft legislation and supported passage of an act making the code mandatory for all Florida building code jurisdictions. The 1980 Florida Legislature enacted this law which became effective October 1, 1980.
- Conducted over 67 training seminars and workshops on the energy efficiency code for approximately 6,300 building officials, contractors, manufacturers, engineers, and architects througout the State. These training sessions were conducted to facilitate full implementation of the code.
- Worked with the Florida Department of Community Affairs to provide for a smooth administrative transition of code jurisdiction to that agency. Assisted that department in promulgating rules for the implementation of the code.

- Developed a plan and prepared a contract with a consultant for an evaluation of the code to determine compatibility with the federal Building Energy Performance Standards (BEPS).

**Residential**

- Developed, through a contractor, and distributed to the public the ***Residential Energy Workbook***. Tailored to the three different climate regions of Florida, (north, central and south), the workbook provides an energy survey and management guide for homeowners and renters. Suggestions for practices and measures that will save energy and money, and a method to determine payback periods for energy investments are also provided. Over 10,000 copies of the workbook were distributed during the last four months of 1980.
- Developed, through a contractor, ten Florida-specific consumer publications on various aspects of residential energy conservation and efficiency. Topics included are: cooling, heating, hot water use, lighting, waste heat recovery, attic ventilation, refrigeration and cooking, laundry and small appliances, solar water heating, and a solar decision checklist. These will be published early in 1981.
- Developed, through a contractor, fourteen technical reports on residential energy conservation and efficiency. These reports are based on actual research conducted on Florida homes and cover various aspects of residential energy consumption. They will be available on request early in 1981.
- Prepared public information material on a number of residential energy conservation topics:
  ***Home Energy Audits: Checking Your Home's Energy Health*** (published 1980)
  ***The Heat Pump Alternative*** (published 1980)
  ***Energy Efficiency in Florida Mobile Homes*** (to be published in 1981)
  ***Energy Efficiency in Florida Apartments*** (to be published in 1981)
  ***Choosing a New Air Conditioner (to be published in 1981)***
  ***Closing Your Florida Home While You Are Away (to be published in 1981)***
- Developed, through a contractor, published, and distributed ***Houses and Climate: An Energy Perspective for Florida Builders***. This publication provides information on passive design techniques for Florida homes.
- Developed, through a contractor, a major technical report on the use of landscaping to reduce energy consumption in Florida homes and buildings.

**Business/Industry**

- Developed, through a contractor, a boiler calibration and facility audit awareness program. As part of this program, approximately 30 professional instructors around the State have received special training in boiler combustion efficiency and can provide businesses with instructions for the efficient operation of boilers. This program is anticipated to reach approximately 2,500 commercial and industrial establishments in the State.
- Developed a pilot program targeted to grocery, retail store, and restaurant businesses. Pilot program will be tested in Marianna, Panama City, Pensacola, Bartow, Winter Haven, and Tampa.
- Initiated the Industrial Energy Efficiency Task Force Project. The project is aimed at increasing energy efficiency in industry and involves technical representatives from five companies in each of the three most energy-intensive industries in Florida: chemicals, phosphate, and pulp and paper. Professional representatives from the Florida Engineering Society, the Florida Pulp and Paper Association, the Florida Consulting Engineers Association, and the University of Florida are also included on the task force.

- Administered, for the U.S. DOE, the Emergency Building Temperature Restriction Program. Publicized and checked compliance with the temperature restrictions required for non-residential buildings. During 1980, 3,900 non-residential buildings in the State were inspected for compliance; over 90 percent were found to be adhering to the required temperatures. Also, as part of this program, funded research on the proper types of business clothing to wear to be comfortable at the required temperatures and produced fashion and videotape productions on energy-efficient clothing.

**Agriculture**

- Developed, in coordination with the Institute of Food and Agricultural Sciences (IFAS), University of Florida, a freeze protection information system to more accurately predict the onset of freezing temperatures in citrus areas. This system allows growers to withhold costly and energy-consuming freeze protection measures until absolutely necessary.
- Developed, in coordination with IFAS, a program to more accurately determine when irrigation is necessary, eliminating the energy-wasting practice of routinely irrigating.
- Developed, in coordination with IFAS, an energy audit program for on-farm operations. The audit determines areas of high energy use and uses a financial model of the impact of low energy technology on a farmer's operations to aid in making investment decisions.

**Government**

- Conducted energy audits in 20 State facilities in Tallahassee and recommended and gained legislative approval for $1,900,000 in energy retrofits and installation of an electronic energy management system for 12 buildings in the Capitol Complex. Six additional facilities were audited, and funding of retrofits will be recommended for Fiscal Year 1981.
- Assisted the Department of Health and Rehabilitative Services in securing $645,000 in State funds for use in matching federal funds to conduct energy audits and undertake energy retrofit projects.
- Funded the Department of General Services to intitate energy conservation in procurement practices. As part of this program, 17 life-cycle-cost models were developed and disseminated, 10 workshops were conducted, and 4 newsletters were prepared and distributed.
- Developed cooperative procedures to assist the Department of General Services in implementing their Preventive Maintenance Program.
- Through cooperation with the Department of Commerce and the Florida Solar Energy Center, re-directed the complete retrofit of the existing solar system at the Yulee Welcome Station. This retrofit was carried out by the original contractor, ARCO, at no cost to the State.
- Promoted and coordinated energy conservation in public school facilities by conducting management workshops and providing technical assistance to school districts in the development of energy management programs.
- Administered the federal Institutional Buildings Grant Program which provides matching grants for energy audits and technical assistance for schools, hospitals, buildings owned by local governments, and public care institutions. Grants to install energy conservation measures in schools and hospitals are also provided under this program. Since initiation of the program:
  - 5,000 preliminary energy audits have been performed on eligible buildings;
  - 1,255 energy audits have been performed;
  - 750 technical assistance analyses have been conducted;

- 120 energy conservation measures have been installed in schools and hospitals;
- Over $6.5 million in federal funds have been awarded; and
- 197 technical assistance analysts and 317 energy auditors have been trained and certified.

It is estimated that, as a result of the energy audits conducted under this program, *590,000 barrels of oil per year* will be saved in Florida. *Another 94,000 barrels of oil per year* will be saved in the State as a result of the installation of the energy conservation measures.

**Energy Extension Service**

- Developed and established the Florida Energy Extension Service (EES), a decentralized local approach to energy conservation activities. EES programs focus on six specific areas:
  1. Energy-efficient building construction, promoted through workshops and seminars for builders and realtors. Preparation of a handbook for builders (to be used at the workshops) was initiated in 1980.
  2. Incentives for energy conservation through energy-related loan practices of financial institutions, promoted thorugh seminars for loan officials and a handbook for financial institutions. The handbook was completed during 1980, and a series of nine seminars was initiated.
  3. Energy-efficient hotel and motel operation, promoted through workshops for operators and managers and an energy-efficient operations manual. The manual was prepared during 1980, and a series of nine seminars was conducted.
  4. Ridesharing and energy-efficient driving programs, promoted by the Energy Extension Agents.
  5. Assistance to local government in the development of ordinances and regulations promoting energy conservation and efficiency. A handbook of model ordinances was prepared during the year (by the Center for Governmental Responsibility, University of Florida, under contract to the Governor's Energy Office).
  6. Residential conservation, emphasizing do-it-yourself home energy check-ups, condominium programs, and landscaping for energy efficiency. Preparation of written materials for these programs was initiated in 1980.

  The EES programs are carried out in coordination with the Institute of Food and Agricultural Sciences at the University of Florida and the County Cooperative Extension Service offices. Special Energy Extension Agents in nine selected metropolitan counties conduct EES program activities aimed at the six areas listed above.

## Responsibility

Evaluate State plans and programs and provide recommendations to the Florida Cabinet, Florida Legislature, and appropriate State agencies on any measures deemed necessary to ensure such plans and programs are consistent with State energy policy. ss.377.703(2)(a), F.S.

## 1980 Accomplishments

- Reviewed and commented to the 1980 Florida Legislature on numerous energy proposals.
- Provided a series of recommendations to the Public Service Commission on utility conservation options.

- Reviewed and assessed the plan and recommendations of the Department of Health and Rehabilitative Services covering the management of Florida's low-level nuclear waste.
- Assisted in formulating recommendations to the Florida Legislature on the feasibility of using coal slurry pipelines in Florida.
- Worked with Department of Community Affairs on weatherization plan for inclusion in the Coordinated State Grants Program Plan.
- Reviewed the energy emergency contingency plans of the Public Service Commission.
- Revelwed energy emergency contingency planning legislation of Florida and recommended amendments to enable the State to better respond to energy emergencies.
- Prepared an analysis of emergency transportation conservation measures to be implemented in the event of a serious energy emergency. Analysis included a driverless day plan, reduction of the speed limit to 50 MPH, and a mandatory carpooling/ridesharing program.
- Participated in the development and formulation of the 1980 Proposed Energy Legislative package, including providing required energy data, conducting research and making recommendations on various preliminary and final measures; prepared impact analyses (economic and energy savings) of proposed measures; and worked with legislative staff on their assessments of measures.
- Developed an assessment tool for the legislative workshops sponsored by Governor's Energy Office.
- Reviewed and provided comments on the Department of General Services' budget proposals as they related to transportation and the goal of increasing the use of more energy-efficient modes of travel.
- Reviewed and provided comments on the Florida Department of Transportation's Energy Conservation Plan and Policy Statement to ensure consistency with energy conservation goals and objectives.
- Reviewed and provided comments on the 1980 plan of the Bureau of Highway Safety, Department of Community Affairs.

## Responsibility

Prepare and distribute such information and materials as may be necessary to provide energy information to the citizens of the State. ss.377.703(3)(i), F.S.

Promote energy education and the public dissemination of information on energy and its environmental, economic, and social impact. ss.377.601(4)(h), F.S.

## 1980 Accomplishments

**Public Information**

- Initiated a statewide campaign to promote energy awareness and conservation using the theme, "In today's world, energy is everything. Save it, Florida." Television, radio, and printed messages that encourage energy efficiency and conservation at home, at work, and on the road appeared throughout the State. Funded by a special grant from the U.S. Department of Energy, the promotional campaign is the first of its kind in the nation; it is unique because it emphasizes participation by the private sector. By the end of 1980, over 50 private business enterprises and groups had become "Governor's Energy Partners"

and were working together with the State to promote energy efficiency and conservation in Florida.

- Continued to provide the County Energy Information Centers (County Cooperative Extension Office) with publications and services. The centers distribute publications relating to energy, answer questions about energy, and include aspects of energy in their regular extension services and programs. The program is coordinated through the Institute of Food and Agricultural Sciences at the University of Florida. During 1980, the county centers distributed over 200,000 publications (provided by the Governor's Energy Office) and carried out programs that provided energy information to over 50,000 people.
- Prepared and distributed monthly (as a press release) a "Florida Energy Report Card" presenting energy consumption indicators, such as electricity and gasoline sales. In addition to the report card releases, over 50 informative press releases were prepared and distributed.
- Prepared a series of camera-ready "EnergyLine" columns providing energy-saving tips. These were prepared for use in newsletters, publications of other agencies and organizations, and weekly newspapers.
- Prepared and distributed a bi-monthly newsletter, *The Governor's Report on Energy*, to provide the public and elected officials in the State with information on current energy programs and energy conservation efforts. Newsletter circulation is approximately 4,500.
- Established a speakers bureau to respond to requests for speakers on various energy topics. More than 50 presentations were made by Governor's Energy Office staff during 1980.
- Responded to questions from the press and the public directly or referred the asker to someone who could supply an answer. Over 5,000 inquiries from the public and press were received and responded to in 1980.
- Distributed to the public a wide variety of publications on all aspects of energy and energy conservation. In addition to the materials developed and published by the Governor's Energy Office (see next two pages), publications prepared by the U.S. Department of Energy were obtined or reprinted for distribution to the Florida public. Over 250,000 publications were distributed during 1980.

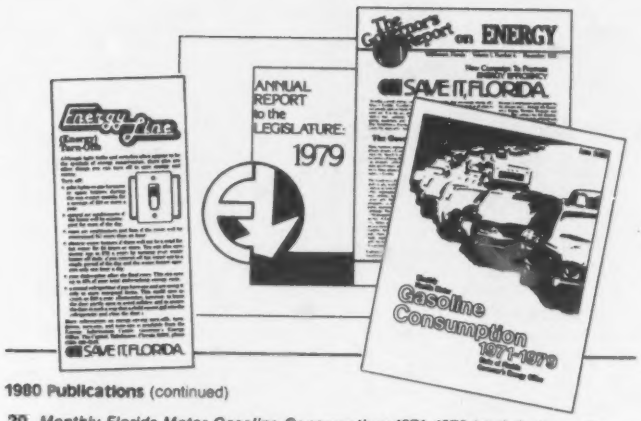
**Energy Education in Schools and Colleges**

- Conducted the Fourth Annual Energy Education Conference. The purpose of this conference is to familiarize Florida educators with energy-related educational programs, information, and ideas. Over 400 attended the 1980 conference.
- Developed, through a contractor, and distributed two energy education curriculum guides: one for teachers in grades 7-9, and one for grades 10-12.
- Developed, through a contractor, abstracts of energy materials for use in college classes and abstracts of energy materials for grades K-12.
- Represented Florida on the Task Force for State Energy Education Policy of the Education Commission of the States.
- Coordinated with federal and other State agencies on the development of energy education programs.
- Conducted, through contractors, surveys of energy-related courses being offered in Florida's community colleges and universities.

## Governor's Energy Office Publications

**1980 Publications**

1. *Ad-VAN-tages* (brochure on employer-sponsored vanpools).
2. *Agenda for Florida's Energy Research and Development Program* (report of the Interim Research and Development Task Force).
3. *Annual Report to the Legislature: 1979.*
4. *DECAT (Driver Energy Conservation Awareness Training) Fuel Saving Tips for Drivers* (brochure for consumers).
5. *DECAT for Vehicle Fleets* (brochure for operators of vehicle fleets).
6. *Energy and My Environment: Grades 7-9* (teacher's curriculum guide).
7. *Energy and My Environment: Grades 10-12* (teacher's curriculum guide).
8. *Energy Conservation Services for Florida's Business Community* (brochure for business firms).
9. *Florida Model Energy Efficiency Code for Building Construction.*
10. *Go Solar* (poster promoting use of solar energy).
11. *Governor's Report on Energy* (bi-monthly newsletter).
12. *The Heat Pump Alternative* (brochure for consumers).
13. *Home Energy Audits: Checking Your Home's Energy Health* (brochure for consumers).
14. *Home Energy Checklist* (brochure for consumers).
15. *Houses and Climate: An Energy Perspective for Florida Builders* (passive design manual for Florida homes).
16. *How to Save Gasoline and Money* (brochure for consumers).
17. *Instruction Manual for the Florida Model Energy Efficiency Code for Building Construction* (printed in three versions: north, central and south Florida).
18. *Interim Florida Energy Emergency Contingency Plan.*
19. *Keep on Trucking: A Trucker's Guide to Fuel Conservation* (brochure).




**1980 Publications** (continued)

20. *Monthly Florida Motor Gasoline Consumption: 1971-1979* (statistical report).
21. *Residential Energy Workbook* (a home energy management survey and guide, printed in three versions: north, central and south Florida).
22. *School Calendar, 1980-1981* (poster).
23. *Share a Ride: Enjoy Life in the HOV (High Occupancy Vehicle) Lane* (brochure for consumers).

**Pre-1980 Publications Available**

1. *An Analysis of Solar Water Heating Installations in State Buildings* (1976 research report).
2. *Annual Report to the Legislature: 1978.*
3. *Energy Management Systems for State Buildings* (research report, 1978).
4. *Florida Energy 2000 A.D.: How Do We Get There From Here?* (proceedings of a conference held January 11, 1978).
5. *Florida Energy Profiles* (statistical brochure containing 1978 data).
6. *Florida Natural Gas Situation, Heating Season: November 1978–March 1979* (1979 statistical report).
7. *Governor's Energy Office: Summary of Programs* (1979 brochure).
8. *Heat Recovery Techniques and Demand Monitoring of Hot Water Systems in State Buildings* (research report, 1978).
9. *Patterns of Energy Consumption in Florida: 1973-1975* (research report, 1978).
10. *Patterns of Energy Consumption in Florida: 1976* (research report, 1979).
11. *Statistics of the Florida Electric Utility Industry: 1960-1976* (statistical report published in May 1978; subsequent editions published by and available from the Florida Public Service Commission).
12. *Toward a Comprehensive Energy Research and Development Program for Florida* (special report, November 1979).

## Responsibility

Consistent with State energy policy [ss.377.601(4), F.S.], develop and institute energy management programs and include energy considerations in planning activities. These efforts include consideration of the energy needs of various economic and social sectors as well as considering the impacts of energy on the environment, the economy, and society as a whole.

## 1980 Accomplishments

- Organized and chaired an Interagency Task Force on the management of Low-Level Nuclear Wastes (LLW); developed policy recommendations to the Governor. Established on-going liaison with federal agencies and organizations on regional/national LLW issues.
- Organized and chaired an Interagency Coordinating Group studying options for the promotion of renewable energy industries in Florida.
- Actively participated in Coal Slurry Pipeline Study (by Interagency Committee) and preparation of feasibility report and recommendations to the 1980 Florida Legislature.
- Continued preparation of working paper on Florida Energy Policy.
- Initiated an analysis and report on the special needs of low income persons, and began the development of recommendations as to how to best address those needs.

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## Responsibility

Serve as the State clearinghouse for indexing and gathering all information related to energy programs in State universities, private universities, federal, State, and local government agencies, and private industry; prepare and distribute such information in any manner necessary to inform and advise the citizens of the State of such activities and programs. ss.377.703(3)(i), F.S.

## 1980 Accomplishments

- Completed an inventory of State agency energy programs and responsibilities and began end-of-year update of same.
- Coordinated the review of and comment on energy-related proposals through the State's A-95 Clearinghouse.
- Initiated a tracking program for energy grants and State and federal energy programs.
- Reviewed numerous energy publications and categorized them for clearinghouse purposes.
- Began compilation of energy laws in Florida.
- Prepared update summaries of legislative issues and Public Service Commission utility conservation goals process. Distributed to interested parties statewide.
- Prepared a needs assessment document on energy legislation, including survey results from two needs assessment workshops held to solicit input from State and local government agencies and interested individuals, organizations, and businesses/industries.
- Initiated an assessment of all State agricultural energy conservation programs being conducted by others than the Institute of Food and Agricultural Sciences.
- Collected data on the energy conservation activities of local governments, regional planning councils, school districts, hospitals, and State facilities.

## Responsibility

Act as a party to the proceedings of the Public Service Commission in adopting goals for increasing the efficiency of energy consumption. ss.366.82(2), F.S.

## 1980 Accomplishments

- Organized and chaired an Interagency Workgroup on Utility Conservation Options. The workgroup, composed of representatives from major State agencies having an interest in conservation issues, played an active role in the goals development process and in the review of the utility conservation plans submitted in response to those goals.
- Actively participated as a statutory party to the Public Service Commission's proceedings on the goals. Evaluated alternative means of calculating the goals and assessed the feasibility and potential impacts of goals of various levels of stringency. Provided extensive testimony to the Public Service Commission on same.
- Reviewed and assessed the 58 utility conservation plans submitted to the Public Service Commission in response to the statewide conservation goals. Provided input to the Public Service Commission on same.
- Participated in the Public Service Commission's proceedings to decide on possible uses for the Florida Energy Trust Fund. Provided suggestions for use of the public education/awareness portion of the trust fund. Additionally, in conjunction with the Florida Research and Development Task Force, presented the commission with recommendations on use of the research and development component of the trust fund. Continued interaction with the Commission regarding development of the process for awarding contract monies from the trust fund.

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## Responsibility

Upon advisement of the Florida Energy Research and Development (R & D) Task Force, develop, coordinate and promote a comprehensive research plan for State energy programs. (Task force to develop a current index and profile of energy research; establish priority agenda; and coordinate and promote research activities pursuant to it.) ss.377.703(3)(k), F.S.

## 1980 Accomplishments

- Prior to the 1980 legislation, appointed, in conjunction with the State University System, an interim Research and Development Task Force made up of 27 members drawn from Florida government, universities, and private businesses.
- The report of the interim task force, Agenda for Florida's Energy Research and Development Program, was prepared following consideration of needed research efforts.
- Pursuant to 1980 legislative action, a permanent Research and Development Task Force (drawing from representative sectors) was appointed to begin carrying out the statutory charge.

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## Responsibility

Coordinate the energy-related programs of State government, including providing assistance to other State agencies, municipalities, and regional planning agencies to promote their energy planning activities. ss.377.703(3)(j)(1), F.S.

## 1980 Accomplishments

- Provided assistance to federal, State, county and city governmental agencies in procuring new allocated fuel assignments, increased allocated fuel assignments, and emergency fuels.
- Assisted the Department of Health and Rehabilitative Services and Department of Corrections to implement an energy audit program for their facilities.
- Worked with local governments to encourage energy audits of their facilities.
- Conducted a training session for the energy planners from Florida's regional planning councils to improve their ability to assist in the implementation of the Institutional Buildings Grant Program.
- Prepared the pilot edition of the *Local Government Energy Management Manual*. This seven-volume manual was prepared by the Governor's Energy Office, the regional planning councils, the Center for Governmental Responsibility (University of Florida), and the Florida Atlantic University/Florida International University Joint Center for Environmental and Urban Problems. The topics covered by the manual include: overall program management, internal operations, regulatory authority, community involvement, transportation, and contingency planning.
- Reorganized the existing regional planning council/regional energy action committee program to provide greater technical assistance to local governments concerning energy conservation in internal operations. Technical support was provided, through the regional planning councils, to 120 local governments.
- Provided technical support to 13 local governments on the use of their regulatory authority to conserve energy.
- Assisted State agencies in identifying energy-related topics for the State University System STAR (Service Through Applied Research) Program.
- Conducted two Local Energy Action Program (LEAP) pilot programs (in Tallahassee and Gainesville) to promote conservation planning and community involvement at the local level.
- Began preparation of a Community Conservation Handbook to be available as a resource tool for local governments and organizations wishing to replicate the LEAP process.
- Organized and chaired a series of interagency task forces on select energy topics.
- Organized ten interdepartmental energy emergency task forces, composed of representatives of all energy-related State agencies. Each task force prepared a report for its operational responsibilities during an actual energy emergency.
- Prepared energy emergency plans in which State agencies would reduce energy consumption on an emergency basis during a serious energy emergency, including the State vehicle fleet plan.
- Reviewed energy emergency plans of selected local governments in Florida, including energy emergency plans of Metropolitan Planning Organizations (MPOs), to ensure that these plans are coordinated with State energy emergency plans.
- Provided energy data to other State and local agencies as required and requested.
- Assisted the Florida Department of Transportation in the development of their Energy Conservation Plan.

## Responsibility

Coordinate the energy-related programs of State government, including requiring, in cooperation with the Department of General Services, all State agencies to operate State-owned and State-leased buildings in accordance with energy conservation standards. ss.377.703(3)(j)(2), F.S.

## 1980 Accomplishments

- Assisted the Department of General Services in conducting their Preventive Maintenance Program by encouraging State agencies to improve preventive maintenance practices.
- Provided funds for energy audits of 26 State buildings and assisted in securing General Revenue funding of $1.9 million for retrofit and energy management systems in State-owned buildings.
- Conducted a survey of the status of implementation of energy management programs by State agencies and prepared recommendations for facilitating the programs.

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## Responsibility

Coordinate the energy-related programs of State government, including promoting the development and use of renewable energy resources, including the commercialization of solar energy in cooperation with the Florida Solar Energy Center and other agencies, and the recovery of energy wastes including the utilization of waste heat, the use of agricultural products as a source of energy, and the recycling of manufactured products. ss.377.703(3)(j)(3), F.S.

## 1980 Accomplishments

- Assisted the Department of Corrections in securing funds and implementing their plans to convert two of their largest correctional facilities from use of fossil fuels to a renewable resource (wood).
- Assisted the Department of Health and Rehabilitative Services in evaluating and securing funding for the conversion of Florida State Hospital from use of oil to use of wood.
- Worked with the Department of Corrections to get their solar collector construction program operational and to assist them in finding markets for the collectors.
- Worked with the Florida Solar Energy Center in preparation, printing, and distribution of publications providing information on the utilization of solar energy.
- Published and distributed a poster urging Floridians to "Go Solar".
- Developed and initiated a work plan for promoting increased awareness of the financial incentives associated with the utilization of solar energy.
- Developed and began implementation of an Alternative Energy Resources Program to promote the use of alternatives to conventional fuels, especially the use of renewble energy sources such as solar, biomass and alcohol fuels.
- Initiated preparation of Renewable Resources Plan for Florida.
- In conjunction with an interagency task force, developed a work plan for the promotion of renewable energy industries in Florida.
- Served on the statewide Biomass Advisory Council to advise the Institute of Food and Agricultural Sciences at the University of Florida.

# Recommendations

## Recommendations for Legislative Consideration

Since it was necessary to prepare this report for printing in December, specific, energy-related recommendations had not been finalized by the Governor's Office. The 1980 Florida Legislative Session produced an aggressive energy legislative program, and the implementation of these statutes is now taking place. Because of the significance of the measures enacted in 1980, we do not anticipate recommending an extensive energy legislative program for consideration by the 1981 Florida Legislature. One exception to this, however, is the strong need for increased transportation emphasis, keeping in mind the major relationship of transportation to energy in Florida.

Florida consumes 36 percent of its "energy pie" in the transportation sector, as compared to a national average of 26 percent. The Florida economy is heavily dependent upon mobility. In this regard, it is extremely important that we continue to develop alternative transportation modes to complement and, in some cases, to substitute for the oftentimes inefficient automobile. At the same time, it is imperative that we become much more energy-conscious concerning the facilities, services, and equipment utilized by the transportation sector, such as signal systems, high-occupancy vehicle lanes, street-light requirements, construction materials, and others. The future energy picture must be a major consideration in addressing transportation problems.

In the light of the results of the national elections and an indicated shift in political philosophy, it is likely that federal energy policy and legislation will be reviewed. In this regard, it should be noted that much of Florida's energy program is based on available federal funding through existing federal programs. Florida needs to be prepared to continue to mesh its programs with federal priorities, while at the same time providing a solid energy management structure largely independent of federal actions. It should be constantly kept in mind that Florida is much more energy-sensitive than many of our 49 sister states.

At the federal level, both the out-going and in-coming administrators have stated a need for increased energy emergency preparedness. Florida has made admirable progress in this

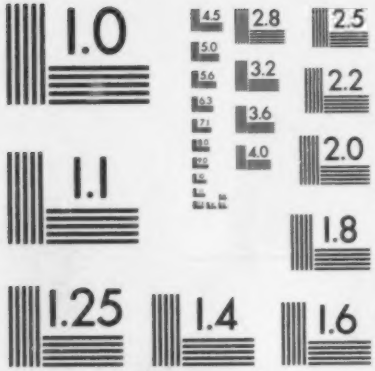
## Recommendations

area, partly due to the 1978 legislative requirement for an emergency plan and the subsequent work by the Governor's Energy Office. In this regard, however, it should be noted that most of our emergency preparedness work is based on the general emergency authority of the Governor; this authority, in some instances, may not be exactly suited to a sustained energy shortage situation that could occur at some future date.

Florida should become a leader in exploring alternative energy sources and developing public acceptance of reasonable energy conservation plans. An excellent start has been made in Florida through the programs of the Florida Solar Energy Center, the Insitute of Food and Agricultural Sciences, the Public Service Commission, and the Governor's Energy Office. Although this effort requires some State funding, the State dollars, in most instances, really serve as seed dollars that bring in federal funds; this will ultimately lead to economic development opportunities that can have some very substantial payoffs for Florida's future.

In looking forward to the 1981 legislative program, we foresee requesting legislative consideration in several areas, including:

- The promotion of renewable energy sources and energy conservation through cost-effective conservation retrofits and renewable source applications in State and local government buildings and institutions and in the private sector.
- Increased emphasis on energy-related research, development, and demonstration projects and programs, continuing the momentum established by the 1980 Florida Legislature through the creation of the Florida Research and Development Task Force.
- Consideration of measures promoting energy-related planning at the local government level.
- Consideration of measures to increase the energy efficiency of State government operations, including measures that will reduce energy consumption by State employees.
- Consideration of measures allowing a greater, more detailed data-collection capability for enery consumption statistics.

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